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THE DISORDERS OF MENSTRUATION

BY

EDWARD W. JENKS, M.D.

GEO. S. DAVIS.
PUBLISHER.

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TO MY FORMER PUPILS :

MANY OF WHOM, FULFILLING THEIR YOUTHFUL PREDILECTIONS, HAVE ATTAINED DISTINCTION AND RENOWN, BUT NOW SCATTERED THROUGHOUT MANY LANDS; IN COMMEMORATION OF PAST ASSOCIATIONS AND IN RECOGNITION OF MANY FRIENDSHIPS WHICH NEITHER TIME NOR DISTANCE CAN LESSEN, THIS LITTLE WORK IS AFFECTIONATELY DEDICATED

BY THE AUTHOR.

Disorders of Menstruation.

BY

EDWARD W. JENKS, M. D., LL. D.,

Professor of Gynecology in the Michigan College of Medicine and Surgery; Fellow of the American Gynecological Society and of the Obstetrical Society of London; Honorary Member of the Cincinnati Obstetrical Society; Corresponding Member of Boston Gynecological Society; President ('87–'88) of the Detroit Gynecological Society, Etc., Etc.

Valeat quantum Valere potest.

1888.
GEORGE S. DAVIS,
DETROIT, MICH.

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1888.

DISORDERS OF MENSTRUATION.

In considering the subject of disorders of menstruation, it is not the purpose of the author of this little monograph to discuss the physiology of menstruation, notwithstanding the subject is very interesting, and might be regarded as appropriate in such a connection, nor will the causes of menstruation be considered, notwithstanding the fact that there have been many learned and ingenious theories promulgated and brought to the attention of the medical world within the past few years. It is the sole purpose of the author to set before his readers only that which will serve to be pre-eminently practical to the busy practitioner.

Readers are referred to the larger text books and works on special subjects to find discussions of theories relating to the causes or the physiology of menstruation.

The subject will be taken up in the following order: 1st., Amenorrhœa; 2nd., Menorrhagia and Metrorrhagia; 3rd., Dysmenorrhœa; 4th., Derangements of the Climacteric.

AMENORRHŒA.

This term designates the absence of the menstrual flow between the ages of puberty and its final cessation. Amenorrhœa should not be confounded with retained menses due to occlusion of any portion

of the parturient canal, or when it is normally absent, as during pregnancy or lactation.

Causes: Amenorrhœa may be due, to some local affection or to lack of development of the generative organs or to pathological changes which may have taken place in some one of them; it may be attributed to debility, in consequence of some constitutional or local disease; exposure to cold though unattended by constitutional disturbances, may be a starting cause; mental emotions such as grief, disappointment, etc.; sedentary habits, indigestion and such chronic disorders as phthisis, repeated hemorrhage from the lungs or other parts of the body. In chlorotic and anæmic patients amenorrhœa is often present and is desirable rather than otherwise, as in such patients if menstruation occurs it is liable to become a profuse hemorrhage.

Diagnosis: In this climate menstruation occurs between the ages of thirteen and fifteen as a rule, but there are many instances of its earlier and of its later occurrence. If a girl has reached the maximum age and there are external signs of development such as enlargement of the breasts, development of the figure, etc., without menstruation making its appearance, particularly if there are indications of the molimen, there is usually some obstruction such as an imperforate hymen, or atresia, which a physical examination alone can determine.

It is very important that one should be certain as

to the existence or non-existence of pregnancy, and if the physician is in doubt, the wisest course is to wait for time to make its revelations on this point. In extra-uterine pregnancy there is usually either entire absence of or scanty menstruation. The same may be be said concerning the existence of ovarian tumors.

Lack of development of the ovaries is occasionally a cause of amenorrhœa but it is more often the cause of scanty menstruation.

Treatment: In cases where puberty is delayed in otherwise strong and healthy girls, and if there are indications of the menstrual molimen no special treatment is necessary beyond encouraging such pursuits as are likely to develop the bodily and mental functions. In cases of undeveloped uteri and ovaria good food, healthy exercise, good hygienic surroundings are of the greatest service in improving the nutrition of these organs. As to remedies under these circumstances it may be said in a general way that tonics and electricity are the most efficacious. Medicines do but little good except as they improve the general health. If amenorrhœa exists in consequence of debility from either general or local disease no special treatment is demanded unless the amenorrhœa persists for a long time after full restoration to health. Although the treatises upon materia medica mention many remedies under the head of emmenagogues, it may be truly said that there is no one of them that can be relied upon.

In anæmic and chlorotic patients iron may be of service, particularly with the former on account of its improving the condition of the blood. General galvanism improves the tone of the entire economy, while galvanism applied to the uterus and over the ovaries, stimulates the nutrition of these organs, and thus assists in their development and aids in the establishment of the menstrual flow. Stimulating applications to the uterine cavity frequently have a similar effect.

The following case may be of interest as illustrative of tardy menstruation due to two causes, the main cause being overshadowed by the lesser:

Miss. E., aged 24, first consulted me two and a half years ago. She was a fairly well developed girl and externally there was nothing to indicate non-development. She stated that she had at the age of eighteen begun to menstruate and menstruated regularly for about four months, since which time there has been no signs externally of the menstrual flow. There was the molimen increasing in severity, and often prostrating and disabling her for days at a time. She had taken quantities of medicine prescribed by different physicians to bring about menstruation, but without avail. After a long time she consented to have an examination made. On attempting to make the examination she was so uncontrollable that it could not be completed, but it seemed that an imperforate hymen existed. It was not until April, 1887, at my private hospital, that a thorough examination was made, first per rectum and later per vaginam with the patient fully anæsthetized by ether. It was then found that one ovary was virtually absent as it was so

diminutive, there being but a rudiment of one. The other ovary was fully developed. The uterus was what is termed "one-horned." The portion upon the side of the undeveloped ovary was in an equally undeveloped state. While under ether the hymen, which was almost imperforate (the opening being only a pin-hole), was removed and a sound passed into the uterus. Since then the treatment has been of a stimulating character locally, and of a tonic character constitutionally. About five months after this menstruation appeared and has since recurred regularly every four weeks, although the flow is rather scanty. Her general health simultaneously began to improve and she now presents a healthful and quite robust appearance. She herself says that she is in far better health than she has been at any time since her 18th birthday.

Another interesting case was that of Mrs. F., a robust, well-developed woman, 32 years of age, who consulted me with reference to the possibility of her becoming pregnant. There was every indication of the development of the ovaries, but the uterus was imperfectly developed, its entire cavity measuring about one and one-half inches in length. Menstruation had always been scanty, and for the two preceding years had barely made its appearance a few times; notwithstanding, every month there was the molimen, accompanied by many distressing symptoms. For two years and a half she was treated from two to four times per week by galvanism and stimulating intra-uterine applications. At the end of this time the uterine cavity measured a trifle over two and one-fourth inches, menstruation had become regularly established, and on returning for treatment it was found that the menses had not appeared at the expected time, therefore she was advised to have nothing done, as there

were some symptoms of pregnancy. The surmise proved to be correct and she has since borne two children.

In chlorotic and anæmic patients, particularly in the former, other remedies than iron are required, arsenic and strychnia being frequently of great service; also the mineral acids and bitter tonics, where the digestion is impaired. The author has found the following prescriptions beneficial in very many cases:

℞ Acidi arsen., gr. ij.
Strychniæ, gr. j.
Acidi hydrochlor., ʒ ss.
Tr. ferri mur., ℥ iss.
Aquæ, q. s. ad ℥ iv.

M. Sig.—Take a teaspoonful in water thrice daily after meals.

For patients whose stomachs are weak or peculiarly susceptible to the influence of arsenical preparations, this mixture may be diluted with glycerine; one-half to one ounce of the latter may be added to four ounces of the mixture, with the result of making it more acceptable to the stomach, as well as disguising the taste.

Parke, Davis & Co. also make a triturate tablet containing iron, arsenic and strychnine, which can be prescribed where the bitter taste of the foregoing mixture is objected to. The following is an excellent combination of mineral acid and bitter tonic.

℞ Acidi nitro-mur. dil., ʒ iiss.
Tr. cinchonæ comp., q. s. ad ℥ iv.

M. Sig.—Take a teaspoonful in water three times a day just before meals.

Aloes has long enjoyed a reputation as an emmenagogue, and is valuable in cases of suppression. The author has been in the habit of using the aloetic and myrrh pill of the pharmacopœia. Of late permanganate of potash has been highly commended. Oil of savin, madder, and the gossypium, may all be of service. When menstruation is about due, the use of hot foot and hip baths are valuable aids, but of no advantage at other times. In conjunction with the hip or foot baths hot drinks, such as an infusion of pennyroyal leaves, drank upon retiring, often proves of great benefit. In cases where there is either complete absence or a scanty flow, stimulating applications, such as Churchill's tincture of iodine, or carbolic acid, or the iodized phenol, may often be applied to the endometrium, with satisfactory results.

As these preparations will frequently be referred to, it may be a matter of convenience for the formulæ to be here given:

Churchill's tincture of iodine is prepared as follows:

℞ Iodine (crystals), ʒ v.
Iodide of potassium, ʒ i.
Rectified spirits, ℥ iij.
Alcohol, ℥ i.
M.

There is another preparation called Churchill's tincture which contains less iodine and more iodide of potassium than the above.

There will be frequent references in these pages to a saturated tincture of iodine that is used in the place of Churchill's tincture and which is prepared as follows:

℞ Iodine (crystals), ʒ ijss.
Iodide of potassium, ʒ iij.
Alcohol, ℥ ij.
M.

The combination of iodine and carbolic acid known as iodized phenol originated with Dr. Robert Battey, and is as follows:

℞ Iodine (crystals), ʒ ij.
Carbolic acid (crystals), ℥ j.
M.

For ordinary office use it is advisable in many instances to dilute the iodized phenol one-half with alcohol or glycerin, or alcohol and glycerine.

Glycerin added to any of these preparations of iodine is useful in preventing an escharotic effect.

Often the simple passage of a sound is efficacious, if applied about the time the flow is due. The galvanic stem pessary is highly extolled by some gynæcologists; but the galvanic current by means of an intra-uterine electrode is of greater value.

The author believes that here a word of caution is requisite concerning local treatment, namely, all intra-uterine applications or treatment, should be scrupulously avoided if there is a tenderness of the uterus or its annexes in consequence of an active con-

gestion, or from any other cause than a mere hyperæsthesia.

It should be borne in mind that local treatment in this affection is not demanded except where there is imperfect development of either the ovaries or uterus. The practitioner will occasionally meet with exceptions to this general rule. Where there is a lack of development the general plan of treatment may be said to be of a stimulating character, as for instance, the use of electricity and other treatment heretofore mentioned. While an effort is made to improve the general health of the patient, stimulating applications of various sorts may be used within the vagina, and the safest course is the wisest. Douches of hot water administered while the patient is upon her back, using each time one quart of a temperature ranging from 105° to 112° F., are sometimes of service when the circulation is defective. It may seem paradoxical to prescribe the use of hot water here to increase the amount of blood in the pelvic organs and later to prescribe the same remedy in other disorders for the purpose of decreasing it. But the reader will observe that there is a marked difference in the quantity used in these two diverse conditions; in the former the primary effect or an increase of the peripheral blood is desired, therefore a small quantity (one to three pints) is used; while in the latter the secondary or a decrease of the peripheral blood is desired, produced by constringing the capillaries, therefore a large quan-

tity (one to three gallons) is used. To illustrate what is meant, if one will place his hand in hot water two minutes he will find, on removal, the surface red and swollen; whereas, if it remain fifteen or twenty minutes the skin will present a blanched and wrinkled appearance.

A stimulating application locally applied is a solution of boro-glyceride and alum with glycerine by means of tampons of absorbent cotton. This application will improve the circulation of the pelvic organs. and like all preparations of glycerine applied to mucous surfaces will cause a profuse watery flow.

A formula for the above preparation for office use is as follows:

Boro-glyceride,
Alum, of each, 1 part.
Pure Glycerine, 14 parts.

After using the above, and there is to be found indications of uterine catarrh or an atrophied condition of the endometrium, it is often advisable to dilate the cervix uteri and make stimulating applications to the uterine cavity. The author's favorite preparation is iodized phenol, on account of the anæsthetic properties of carbolic acid causing this application to be less painful than other preparations in general use.

Suspension of the menses, particularly in plethoric women, is frequently attended with febrile symptoms, with severe pain in the hypogastric region and in the head, and occasionally, with patients of this sort, there

will be symptoms indicative of articular rheumatism, which will rapidly disappear upon the appearance of the flow. At other times there will be myalgia or so-called muscular rheumatism, which also will disappear, as by magic, as soon as the menstrual flow is re-instated. In the form attended by febrile symptoms there will occasionally be one that may be benefitted by the use of leeches—a mode of treatment more common in the past than at the present time. For the majority of patients, however, a saline cathartic will be sufficient; in the meantime the hot douches and hot foot or hip baths should be used. Sinapisms may be applied with service to the hypogastrium, over the sacrum or on the inner side of the thighs. The condition of the skin should always be looked to and its health should be maintained by baths.

Not unfrequently there are symptoms calling for the administration of anodynes. While some of the preparations of opium are of great service, extreme care should be exercised on the part of the physician about prescribing this drug. There is no class of disorders more frequently the starting point of the opium habit than those of menstruation. In instances of amenorrhœa, if there is any reason for suspecting the patient may be pregnant, great caution is necessary on the part of the physician, lest in his desire to do good he may unwittingly do harm. No evil result would follow the administration of saline laxatives, hot douches or simple applications to the neck of the uterus. But

intra-uterine examinations or applications should be scrupulously avoided until the physician is convinced of the patient's non-pregnancy.

It occasionally happens that instead of the ordinary menstrual flow, a woman will have a profuse leucorrhœal discharge, and on account of its profuseness will seek the advice of a physician. If under such circumstances astringent applications are made use of the patient will be thereby injured. It is usually where the patient is feeble or there is lack of development that such a discharge occurs.

Derangement of the digestive organs is one of the most frequent accompaniments of this affection. Constipation, as a rule, is always present. The skin indicates the torpid state of the liver and other digestive organs.

The habit of constipation, as well as the condition of the digestive organs, may frequently be improved by the administration of cascara sagrada, or if salines seem to be indicated, the Hunyadi or Friederichshalle water is a convenient and efficacious mode of administration. The author has frequently prescribed, instead of mineral waters, the following of home manufacture:

Table salt, 1 part; bi-carbonate of soda, 3 parts; of which a teaspoonful in a full glass of water is taken an hour before breakfast. If taken in hot water instead of cold, it frequently proves a decided cathartic. Or a laxative pill may be administered at bedtime.

The following, which the author has used for many years in habitual constipation, will often be serviceable:

℞ Ext. belladonnæ, gr. vi.
Ext. nucis vomicæ, gr. xii.
Ext. colocynth. comp., ʒ iss–ijss.
M. et divide in pil. No. xxiv
Sig. One to be taken at bedtime.

Scanty and Vicarious Menstruation.—Under the head of amenorrhœa attention will also be briefly directed to scanty and vicarious menstruation. The causes of the former are the same as those already mentioned, and it is only of the treatment to which the reader's attention is called. The treatment in the main is similar to that which has already been alluded to. Scanty menstruation is frequently associated with other disorders, of which mention will be made later, as dysmenorrhœa, etc. In school girls, in girls employed in shops and in stores there is frequently a scanty flow, although it may appear with regularity. The causes in these cases is either due primarily to non-development or, more frequently, to bad hygiene. In order to treat such girls successfully a careful inquiry is requisite into the habits and daily life of each individual patient. In another class of women who have borne children, but more frequently among those who have aborted, there will be found in the uterus a local cause for the deficient flow. The uterus in such cases is usually large, not necessarily congested, but more frequently enlarged on account of connective

tissue growth A careful examination frequently shows also atrophy and a contracted condition of the endometrium. There is still another class, where the uterus has been congested, the ovaries also congested and enlarged, and afterwards the latter have become atrophied.

Of the treatment of the first named patients the greatest in importance is hygienic. A routine treatment cannot be followed with uniformly good results, as each individual case must be considered by itself. In young girls local treatment should not be instituted unless there is in the opinion of the physician an imperative demand for it.

For obvious reasons if an examination of the generative organs of a young girl is deemed necessary it is often best to first anæsthetize her. With such patients a digital examination per rectum is all that is requisite in a great number of instances. Before making such an examination the rectum should be washed out by a copious enema of warm water. The physician can ascertain by a rectal examination as to the development or non-development or the symmetry or asymmetry of the generative organs.

In the management of these cases what has already been stated on this point might be repeated. In young girls such as have been spoken of in addition to the hygienic measures referred to everything in the way of constitutional treatment should be of a tonic character. Food is of no service

unless assimilated, and while patients frequently tell their physicians that they have good appetites and consume large quantities, careful inquiry will often reveal the fact that nutritious food is either not partaken of or else it is not assimilated. To promote the appetite, and at the same time aid in digestion, bitter tonics with mineral acids as heretofore stated will frequently result in improving the general health and increasing the menstrual flow. In scanty flow with these poorly nourished girls the author has frequently found Blancard's pills very beneficial in increasing the flow and at the same time strengthening them. Quinine, which has no influence in primarily exciting the menstrual flow, if administered after it has begun will almost invariably cause its increase.

In those who have borne children and the uterus is large from connective tissue growth the application of the iodized phenol to the uterine cavity a few days prior to menstruation, the use of the hot douche, and borated glycerine upon cotton tampons, applied several times a week in the intermenstrual period will have the effect of softening the tissues and stimulating to healthy nutrition.

In plethoric women and those of sedentary habits some remedy which will tend to stimulate the portal system about a week prior to the time of flow will be found to have a good effect. The vegetable cholagogues while doing this efficiently, do it more un-

pleasantly than the mercurials. The following prescription has been found serviceable.

℞ Mass. hydrarg.
Sodii bicarb., ää gr. iv,

M.—Divide in pillulas, ii.

Sig.—Take one at night, the other two nights later, each to be followed by a saline laxative.

Another mercurial of great service is to take from one to three grains of calomel with three to five or ten grains of bi-carbonate of soda at night to be followed for two or three mornings with some saline laxative, such as the Hunyadi or Friedrichshalle water. Equally good results can be obtained by the proto-iodide of mercury in one-eighth or one-quarter grain doses administered in the same manner as the other mercurials already mentioned, to be followed by saline laxatives. If for any reason the physician does not wish to prescribe mercurials, aloin combined with podophyllin will serve an excellent purpose, each pill containing one-eighth of a grain of each of the ingredients named. Of this combination one or two may be given as a laxative.

Where systemic abnormalities do not seem to be the origin of the difficulty there is usually to be found a lack of activity on the part of the uterus or ovaries although they may have reached full development and have formerly performed their functions normally. These conditions just mentioned occur the most fre-

quently among women who have passed the meridian of menstrual life and have never borne children.

Aside from systemic remedies, which tend to increase the amount of blood in the pelvis such as iron, quinine, aloes, etc., certain local procedures and medications are also serviceable. Within certain limits stimulating the uterus, acts indirectly upon the ovaries, hence the inactivity of both may sometimes be overcome by the same measures. The simple, daily passage of a sound or probe to the fundus uteri for a week or ten days before the regular menstrual date is occasionally followed by the desired results. Stimulating enemata at the time of the flow may be useful. Of more value, however, than either of these, is the influence exerted by the systematic application of a continuous galvanic current. For this purpose a uterine electrode is passed to the fundus and an ordinary one of sponge placed over the hypogastrium, first over one ovary and then over the other; also over the fundus of the uterus.

Vicarious menstruation occurs in consequence of the entire absence of the normal flow or where menstruation is scanty. Happily, cases are not very common. Vicarious menstruation usually indicates an impoverished condition of the blood and is usually associated with a hæmorrhagic diathesis. It is said sometimes to be due to a diseased condition of the blood-vessels themselves. There may be a flow of blood from the nose, throat, gums, breasts, lungs,

stomach, bladder, or from any open wound or ulcer, appearing with regularity at the time the menstrual flow is expected or when there is a disturbance of the circulation in consequence of menstrual suppression. One almost anomalous case came under the author's observation where the menses were suppressed in consequence of exposure during a sea voyage, in which there was an oozing of blood through the skin upon the left cheek, lasting for three or four days and recurring every twenty-eight days. This periodic oozing continued for a period of over two years, normal menstruation never again occurring, when symptoms of phthisis began to manifest themselves, and the girl died in a few weeks. The more common cases, however of vicarious menstruation demand no special treatment unless there is a great loss of blood. Treatment should be directed to removing the cause and they should then be treated as cases of amenorrhœa.

MENORRHAGIA AND METRORRHAGIA.

Menorrhagia is the term used to designate an excessive loss of blood at the menstrual periods. Metrorrhagia is the term used to designate a loss of blood from the uterus at other times, it occurring without any reference to periodicity. From the fact that, as a rule, all cases of metrorrhagia are first those of menorrhagia, the two subjects can be very properly considered together.

Causes.—The causes of menorrhagia and metrorrhagia are both constitutional and local.

Constitutional causes.—Conditions of the system known to have a debilitating tendency are the most prominent. Such affections as the following may be considered as favoring these conditions, viz.: Bright's disease, excessive lactation, chronic diseases of the liver and kidneys, mitral disease, more especially mitral stenosis, phthisis, chronic lead poisoning, chronic constipation, mental depression, malaria, luxurious living and sedentary habits, residence in a tropical or enervating climate.

Local causes.—Granular or villous condition of the endometrium, uterine tumors such as fibroids or polypi, subinvolution or enlargement of the uterus from any cause, hypertrophy of the cervix uteri, malignant disease of the uterus, prolapsus uteri, peri-uterine hematocele, pelvic cellulitis, laceration of the cervix, uterine displacements, fragments of retained placenta, and ovarian hyperæmia come under this head.

By the majority of physicians and some medical writers the menopause is considered a common cause of uterine hemorrhage, but the author fully endorses the statement of one of his contemporaries (1) that there is very rarely a well marked case of menorrhagia or metrorrhagia occurring at this period of a woman's life unless it be due to "some well marked uterine disease most frequently directly caused by either fungus granulations or cancerous disease." He also heartily

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1. Wylie, American System of Gynecology, Vol. 1, p. 417.

agrees with this writer in urging upon physicians the importance of this fact and believes with him, "that we would not so frequently see cancer of the cervix advanced to a hopeless stage before an examination is deemed necessary, on account of the erroneous belief that irregular uterine hemorrhage is normal at the menopause."

Diagnosis.—It is of primary importance in cases of excessive loss of blood from the uterus to ascertain whether it be an abortion or not. If a discharge of blood come on suddenly in a married woman whose age does not forbid the possibility of pregnancy, especially where there has been a lapse of two or three menstrual periods, the physician should strongly suspect an abortion. Of course it would be rash to give an opinion without seeking for further evidences of pregnancy. In cases of a medico-legal character the immediate determination on this point may be imperative, but in ordinary practice a little time and patience will serve to determine the question. Excluding abortion from the diagnosis and many of the constitutional causes heretofore mentioned, there will be but few cases occurring in practice but what will require a physical examination to determine the cause. It is important for the physician to bear in mind that the disorders under consideration are not in themselves diseases, but rather the symptoms of some constitutional or local derangement giving rise to an excessive flow of blood. While we admit that there are consti-

tutional causes, more commonly there is some abnormal or local condition. In case the uterus is not in a perfectly healthy condition some systemic disease may the more easily cause a uterine hemorrhage. Under the head of causes allusion has already been made to acute pelvic inflamation. Now it frequently occurs in pelvic cellulitis or peritonitis, salpingitis and ovaritis that there will be a considerable flow of blood from the uterine cavity which usually affords relief, and should not be checked unless excessive. As a rule, if a woman has menorrhagia and at the same time is suffering from any one of these affections, the menorrhagia will not manifest itself at the subsequent period if there has been in the meantime complete recovery from the acute disease. In any of the conditions last referred to, before having recourse to any active intra-uterine treatment, the physician should wait until after the occurrence of two or three periods.

In cases of menorrhagia or metrorrhagia caused by intra-uterine growths, there is no parallel between the amount of blood lost and the size of the tumor, as it frequently happens that an excessive flow will occur in consequence of a small polypus within the cavity of the uterus. On the other hand there may be a large fibroma existing for quite a long period without there being any excessive hemorrhage so long as the canal of the uterus is not too much encroached upon by the growth. To determine as to a granular or villous condition of the endometrium causing a loss of blood

an examination of the uterine cavity will be requisite; for this purpose the dull wire curette should be used. An examination is necessary in order to determine whether any of the local causes enumerated produce the discharge. Not unfrequently upon examination

FIG. 1.—THOMAS' DULL WIRE CURETTE.

by means of a speculum there will be found to exist laceration of the neck of the uterus associated with glandular and follicular disease; also there may be found to be a laceration with sub-involution of the womb.

It frequently happens if there is an acute inflammation of the pelvic organs involving the uterus, that there will be suppression of the menses, and yet later in consequence of this inflammation there will be a vascular condition of the endometrium, or fungosities will be formed, giving rise at first to profuse menstruation and later unless remedied there will be hemorrhage occurring at irregular periods. Exclusive of cancer and the larger uterine tumors, the inflammatory changes just described as occurring within the uterine cavity producing vascularity and fungus granulations, are the most frequent causes in women prior to the age of thirty-five and therefore among the first to be looked for. In women past the age just mentioned without doubt one of the most common

causes of metrorrhagia is some form of malignant disease. And just here the author wishes again to impress upon his readers the importance of a physical examination in all cases of uterine hemorrhage occurring among women past the meridian of menstrual life; for the reason that there are some cases of epithelioma of the cervix and of sarcoma, that can be cured if recognized sufficiently early.

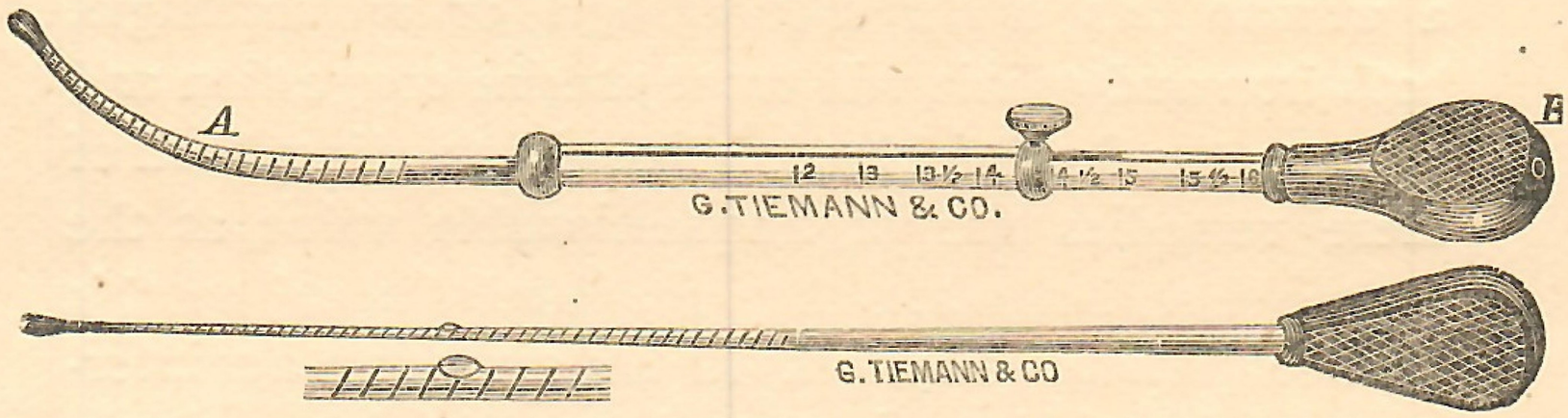

FIG. 2.—JENKS' FLEXIBLE UTERINE SOUND AND PROBE.

In cases where the physician has reason to suspect the presence of intra-uterine growths and at the same time there exists a constricted or tortuous canal, or from any cause a flexible sound or probe fails to determine the diagnosis it may be necessary to dilate the canal for the purpose of further exploration. For this purpose the author prefers rapid, forcible dilatation rather than any form of tent, as being less dangerous, although more painful for a short period of time.

Treatment.—Of the constitutional causes which have been referred to, if any of them exist, it is important in the outset to pay great attention to the general health of the patient. If the menorrhagia be

due to general debility, a tonic course of treatment should be instituted, depending in each individual case upon the cause. The author believes that one of the common errors on the part of physicians in such cases is the liberal administration of iron and quinia. The physician cannot frequently resist the temptation where the patient is anæmic apparently from the loss of blood; and yet experience has proven that when a woman has either menorrhagia or metrorrhagia, both iron and quinia will cause uterine congestion and increase the flow of blood. Notwithstanding, both of these remedies are of unquestionable value, at the proper time, but when they are administered to this class of patients they should be given in the intermenstrual period, or in the absence of hemorrhage. Where the loss has been profuse, the patient should be placed in a recumbent posture with the hips elevated. Hemostatics, such as gallic acid or acetate of lead and opium, are sometimes of benefit in diminishing the flow, but are not curative. If the uterus is large, with its cavity somewhat dilated, ergot may prove useful. Cannabis indica in quite full doses is sometimes beneficial, more frequently, however, in profuse menstruation, but it is a drug that cannot be universally relied upon. Ergot is also useful where there is chronic hyperæmia and sub-involution. If the uterus is in a relaxed state, or where there are sub-peritoneal fibroids, ergot is but of little use, however, and the same may be said of drugs in general if hem-

orrhage is due to uterine fungosities, small polypi, or pelvic inflammations. Digitalis is particularly useful if the hemorrhage is due to the forms of organic disease of the heart in which this remedy is indicated. Arsenic is far superior to iron as it improves the general condition without ever increasing uterine congestion, and is of great service in profuse menstruation of early life and at the menopause. It is also valuable if malaria is a factor in the case. Prof. Fordyce Barker extols arsenic highly in the treatment of excessive flow at the time of the menopause where vaso-motor irritability is especially prominent. He believes it exerts a direct influence upon anæmia of vaso-motor origin. In such cases he usually administers full doses of the bromides during the time immediately preceding the flow, and gives arsenic during the inter-menstrual period.

The bromides of potassium and sodium are valuable sedatives in ovarian irritation and congestion and thus are beneficial in a profuse flow from these causes. They are also of service in hemorrhage produced by pelvic inflammations. Cathartics often exert a beneficial influence if constipation exists. Cathartics, however, are to be avoided if the patient is debilitated, although if there is constipation laxatives are at all times admissible.

Witch hazel is of benefit particularly where the uterus is soft and flabby or the hemorrhage may be considered as of a passive character.*

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* C. D. Palmer, in Trans. American Gyn. Soc., Vol. 12.

Hydrastis Canandensis has been highly recommended by whatever cause the hemorrhage may be produced. Dr. Garrigues praises the gossypium particularly in cases of hemorrhage due to fibroid growths. Dr. Barker combines equal parts of hydrastis canadensis and the fluid extract of witch hazel, given after the flow has begun. He states than when the hemorrhage is associated with a large flabby uterus and nerve depression he has often found the following prescription very satisfactory:

℞ Fluid extract of hydrastis,
Fluid extract of hamamelis,
Fluid extract of Ergot (Squibb's),
Tincture of cinnamon bark, ää ℥ i.

M. Sig. Two teaspoonfuls in a wineglass of water every third hour.*

The viburnum prunifolium or black haw is a most useful drug in menorrhagia or metrorrhagia. The author has found it useful in these cases from any cause, while others seem to think it useful only where the hemorrhage is of a passive character. It is particularly valuable, it may be proper to say here, as a uterine sedative in threatened abortion. The most common form of administering viburnum is the fluid extract in half dram to dram doses. The principal objection to this form is its disagreeable taste but that can be disguised in a great measure, by administering it in cinnamon water.

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*Trans. Amer. Gyn. Soc., Vol. 12.

The amount of valerianic acid which the fluid extract contains renders it more of a sedative than the solid extract. Where the disagreeable taste is objectionable the solid extract may be given in doses varying from three to eight grains. It is well to begin the use of viburnum in cases of menorrhagia several days preceding the flow and continue its administration through its duration and after its cessation.

An excellent combination of remedies well adapted for this condition, particularly where an anodyne or sedative is desired, is viburnum, hydrastin and Jamaica dogwood. Parke, Davis & Co. have combined the above named remedies with aromatics so as to render them less objectionable to the taste, and designate the preparation as Liquor Sedans.

In cases where the flow seems to be dependent upon torpor of the liver much benefit may be derived by the administration of mercurials and saline cathartics. The author's favorite method of prescribing the mercurials and salines is as follows: He directs that granules or tablets of the proto-iodide of mercury in one-eighth or one-quarter grain doses shall be taken in the afternoon and evening to be followed the next morning by a saline cathartic, his preference being Hunyadi water, although seidlitz powders, or citrate of magnesia or other salines, serve the same purpose. It is well to bear in mind, if the physician desires to hasten the action of a saline cathartic, that it can be done by administering it in a hot solution.

Where the uterus is large and flabby iron is of great service, but it should be given in the intermenstrual periods. Some authorities recommend opium in connection with the iron. The remedy which is administered more frequently than any other in uterine hemorrhage is ergot, but unless prescribed intelligently it sometimes may do more harm than good; as for instance, in hemorrhage caused by pelvic inflammation, particularly pelvic cellulitis, in which it will increase the flow as well as the pain. It will also usually increase the hemorrhage if given at the time of the flow, where it occurs in consequence of the uterus being flabby, yet it is beneficial even in these cases, if given in intervals between periods. The author has found that the combination of viburnum and ergot is of great value. Troublesome cases of this kind are occasionally to be found among schoolgirls whose nervous systems are taxed to the utmost by what is termed the "forcing system" or "hot-house" style of education, but really is in consequence of an attempt to attain an education while every law of health is violated.

The most glaring examples of the neglect of some of the most important hygienic laws, thus retarding the development of the generative organs, and laying sure the foundations of chronic invalidism, are to be found in not a few of the fashionable boarding schools for young ladies. This subject cannot here be discussed *in extenso*, although it is one of paramount

interest not only to parents and guardians, but also to physicians and all those whose thoughts are turned towards the welfare of the coming generation.

Such girls as above mentioned menstruate irregularly and menorrhagia is quite common. As a rule, these girls are constipated, usually obstinately so. This condition induces pelvic congestion and subsequently menorrhagia, therefore the course to be pursued is plainly indicated. The bowels should be evacuated regularly and the patient should be required to take proper systematic exercise. Hygienic treatment in this class of cases is of paramount importance. If an examination is made the uterus will, as a rule, be found flabby. With such patients the author has been able to regulate menstruation where it occurs irregularly by the use of viburnum, generally alone, but sometimes combined with ergot. For the purpose of regulating menstruation where it appears too frequently or irregularly, the viburnum should be administered in the intermenstrual periods beginning a week prior to the expected menstruation, and when the flow appears, if at the right time, the remedy should be discontinued, unless the loss of blood is excessive.

Dangerous uterine hemorrhages are by no means uncommon demanding prompt and active measures. Where the loss of blood occurs so suddenly and the amount is so great as to threaten the life of the patient, palliative measures are of little avail. These

emergencies should be met by such means as will promptly check the flow and thus hold it until some curative measures can be instituted. In severe hemorrhage the patient must lie abed with the hips somewhat elevated, cold and acid drinks, cold applications to the hypogastric and sacral regions, to the vulva and in the vagina are applicable in most cases. In such conditions, some of the remedies already mentioned, are often very serviceable, opium being the most important. Fortunately in these cases of severe hemorrhage, the flow can be arrested with great certainty by mechanical means and topical applications. By mechanical means is meant some form of tampon. If the blood is confined by the tampon it is coagulated and the space between the tampon and the source of the flow is filled with a fibrinous clot, which serves also to close the mouth of the vessels. If the tampon is properly inserted the temporary relief is perfect and thus there is afforded valuable time for other modes of treatment. The tampon, if effectual, permits the patient to pass by the danger of the period after which the hyperæmia will often subside.

For the purpose of tamponing the vagina the patient should be placed upon her side and a Sims' speculum used, if one is at hand. If the case is urgent and a Sims' speculum cannot be readily procured, the physician can ordinarily retract the perineum sufficiently by one or two fingers. The best material to

be used is sublimated absorbent cotton, rolled up in pieces about the size of an English walnut, each piece being tied with a strong thread for removal. Lamp-wicking is also an excellent material for tamponing.* A sufficient number of these rolls of cotton to entirely fill the vagina should be inserted. Another method of plugging the vagina has been described by Dr. Thomas† as follows:

After exposing the neck of the uterus to view in the manner described, "pieces of cotton soaked in water, pressed and flattened out by the fingers, each about the size of a very small biscuit, are pressed into the vaginal cul-de-sac by means of forceps till this is filled. Then other pieces are packed firmly around the cervix until only the os is visible; a smaller pad is then pressed firmly against, or introduced within the cervical canal, and the whole vagina is then filled to its lowest portion." As a rule, after tamponing the vagina a T bandage should be applied.

It often occurs in severe hemorrhages that the mouth of the uterus is sufficiently open to permit the introduction of some material, such as absorbent cotton saturated with a hæmostatic preparation.

The late Dr. Sims' method of preparing hæmostatic or styptic cotton for the purpose of tamponing the uterus is simple and admirably efficient. The material used is the finest quality of cotton wool saturated

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* See Am. Syst. Gynecology, Vol. I, p. 362.

† Amer. Jour. of the Medical Sciences, July, 1876.

with a liquid composed of one part of the strong solution of the sub-sulphate of iron and two of water. When the cotton is thoroughly saturated it is squeezed as dry as possible and then allowed to become perfectly dry when it is ready for use. The styptic cotton is used after the following manner: Wrap a sufficient quantity of it around a long, small piece of whalebone and then introduce it into the uterine cavity, then detach it from the whalebone allowing it to remain. If the flow is comparatively moderate, a single piece of the ironized cotton may be sufficient, but if profuse it will be necessary to put in enough to entirely fill the cavity of the womb. For the purpose of tamponing the uterus with the material just described, the patient should be placed upon her side and the uterus exposed to view by means of a Sims' speculum. The removal of the ironized cotton is not an easy task if done after the manner described by Sims. The author has been in the habit of wrapping each piece of cotton before its insertion with a piece of strong thread of sufficient length to extrude beyond the vulva. By such means the styptic cotton can be easily removed when its retention is no longer necessary. The styptic cotton should not be allowed to remain under any circumstances longer than twenty-four hours, when a fresh quantity can be inserted if there is any demand for it. The author wishes here to record his protest against a practice which has been very common of using styptic intra-uterine injections. As,

aside from the danger, the act itself is liable to produe quite a severe shock. Sometimes where the mouth of the uterus and the cavity of the neck are not sufficiently dilated to permit the introduction of styptic cotton into the cavity of the womb, the cervix can be tamponed with carbolized sponge or sublimated cotton; the material being first wrapped with a strong thread to facilitate its removal. The cervical tampon should be removed within twenty-four hours and the vagina thoroughly washed out with some aseptic preparation, the best being a solution of bi-chloride of mercury one to three thousand.

In menorrhagia or metrorrhogia which the physician has reason to believe has been caused by a villous condition of the uterine mucous membrane or so-called fungosities, or from fragments of the products of conception, the means which he uses for a diagnosis is identical with that employed for cure, viz., the dull wire curette. Before deciding to use the curette an examination should first be made to determine whether the uterus is in a condition for an operation that may be designated as tolerant. If the woman complains of pain when a digital examination is made it is necessary to decide whether it is caused by a simple hyperæsthesia or due to active congestion. If the former, the uterus will tolerate any ordinary operation; if the latter, the simplest operation may prove disastrous. If the uterus or its appendages are tender to the touch in consequence of

active congestion the treatment should be palliative, and no active measures or operative procedures should be begun until the active congestion has subsided. This often requires months of judicious treatment. If the uterus be in a tolerant condition and it is decided to use the curette, the canal of the cervix should be first dilated by means of a dilator; Sims's or Ellinger's, or the

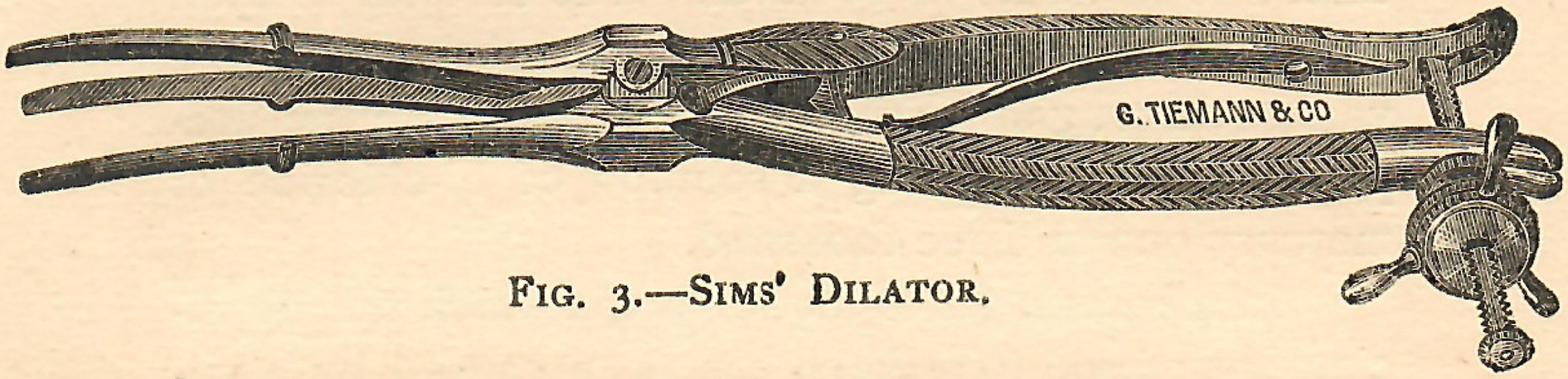

FIG. 3.—SIMS' DILATOR.

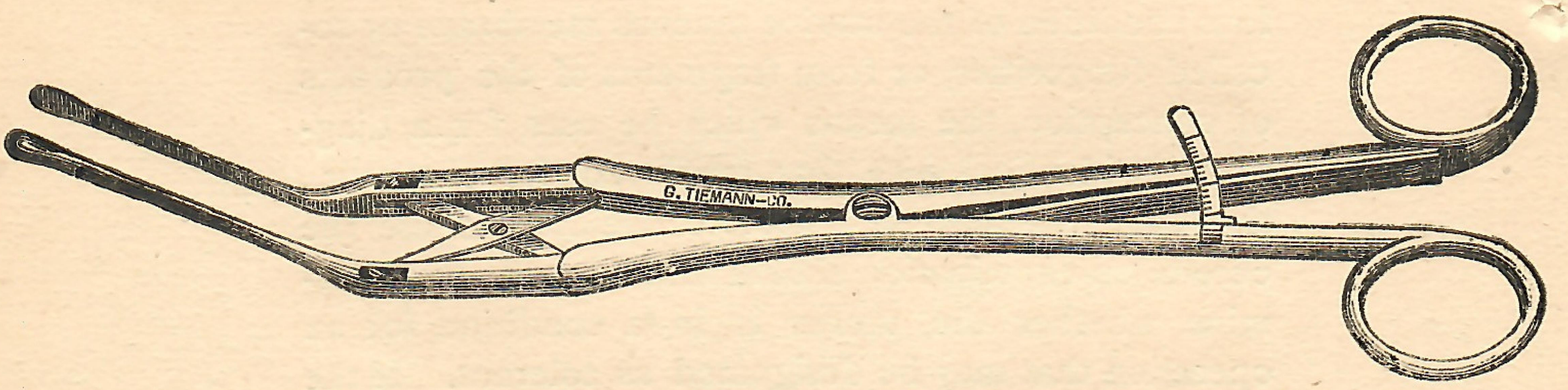

FIG. 4.—ELLINGER'S DILATOR.

latest device of Molesworth (See Fig. 11) being used for that purpose. Oftentimes the use of the curette is not sufficiently painful to demand the use of an anæsthetic, yet one is required for the more easy management of the patient. The patient can be placed on her side and a Sims's speculum used, or upon her back, as

the author prefers, and Simon's specula employed. The womb should be held firmly by a vulsellum or strong tenacula and Thomas's dull wire curette should first be used. If the physician finds after passing the curette over the uterine surface that fragments resembling mucous membrane adhere to it, he then proceeds to thoroughly scrape the entire mucous lining. Where fungosities are found to exist within the cavity their location will frequently be confined to one horn; in parous women the one affected having previously been the placental site. The dull wire curette will not always alone suffice, owing to the firmness of these

FIG. 5.—SIMS' CURETTE.

growths. It then becomes requisite to use the cutting curette of Sims or the scoops of Simon. The curette is useful in other conditions of the uterus causing hemorrhage, for instance, where the entire endometrium is thickened and the uterine cavity dilated. The physician should never promise that

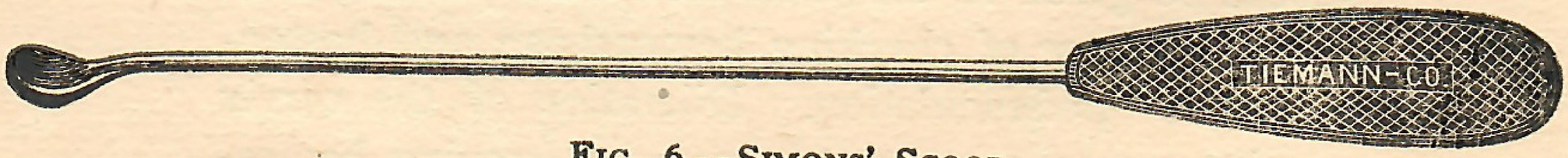

FIG. 6.—SIMONS' SCOOP.

a single curetting of the uterine cavity, no matter how thoroughly done, will result in cure. Either the curette may fail to scrape away all the fungus growths or it may ride over those in a formative

stage, or the causes still continuing to exist which produce intra-uterine fungosities, the operation may be required a number of times before a cure is effected. The author is acquainted with one patient whose uterus was curetted fourteen times before a cure was obtained, but as to the thoroughness of any one of the operations or subsequent treatment prior to the twelfth curetting he has no personal knowledge. Immediately after the curetting is completed the cavity of the uterus should be swabbed with Churchill's tincture of iodine or a tincture of iodine of equal strength. This prevents the absorption of septic material and causes the uterus to firmly contract. Subsequently the periodical application of Churchill's tincture of iodine or the iodized phenol will produce an alterative effect upon the endometrium which lessens the liability to the return of fungosities.

A sub-peritoneal fibroid even of large size may produce no hemorrhage; the nearer a fibroid approaches the mucous lining of the uterus, the greater is the liability to hemorrhage regardless of size. To diminish hemorrhage from sub-mucous fibroids, ergot should be given in the inter-menstrual periods, both for the purpose of checking hemorrhage and hastening their pedunculation. Dilatation of the cervix usually serves a good purpose in lessening hemorrhage.* Bi-lateral incision of the cervix is effectual,

*Vide "Dilatation of the Cervix Uteri for the Arrest of Uterine Hemorrhage." By G. H. Lyman. Trans. Amer. Gyn. Soc., vol. 2.

but forcible and rapid dilatation, is preferable. At the menstrual periods, rest in bed, viburnum, or some of the other remedies already mentioned, should be administered.

As a means of arresting hemorrhage due to fibromata of the uterus, the use of the dull wire curette will often prove efficacious. It has a very warm advocate in Dr. Coe,† the pathologist of the Woman's Hospital in New York.

The author cannot refrain from giving here the conclusions of Dr. Coe, both as to the cause of the hemorrhage and the *modus operandi* of its treatment:

"1. The hemorrhage in cases of fibroid tumors of the uterus has its source not in the tumor itself, but in the hypertrophied endometrium.

2. The hemorrhage is not directly proportionate to the size of the tumor, but to the extent of the mucous surface. Venous obstruction and the menstrual congestion in the mucosa are the chief active causes.

3. In certain cases the hemorrhage can be diminished for a considerable period by thoroughly scraping away the hypertrophied endometrium and repeating the operation as often as may be necessary to keep the menorrhagia under control.

4. Curretting is merely a palliative measure but it may enable the patient to survive until she is re-

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†Vide Medical Record, Jan. 28, 1888.

lieved at the menopause, whereas radical operations too often result fatally.

5. Curetting in these cases should be regarded as an experiment, which, however, is so harmless and frequently successful, that we are justified in giving it a fair trial before advising oöphorectomy, miomotomy, or super-vaginal amputation.

6. The use of the curette requires no special skill. It is an operation for the general practitioner, and is much more rational than to allow the patient to become exhausted by repeated hemorrhages which medication and other palliative measures are powerless to control."

It is almost superfluous to add that as soon as pedunculation has taken place in a submucous or interstitial fibroid it should be removed.

In sub-peritoneal fibroids, ergot frequently does harm instead of good, because it tends to cut off the blood supply from a more or less detachable mass within a closed cavity.

It is in this class of cases where occasionally constitutional and local treatment seems to be of no avail, that the removal of the uterine appendages becomes a necessity.

In hemorrhage from enlargement or sub-involution of the uterus, or hypertrophy of its neck, the curette is frequently of service. In the inter-menstrual period, the topical use of iodine or the iodized phenol, or iodoform, often prove of great benefit, but

their application should not be made to the uterine cavity within four or five days of the menstrual date. Iodine should not be employed as an intra-uterine medication more frequently than three times per week, but in the meantime daily applications of iodide of potassium and glycerin (1 drachm to the ounce), upon pledgets of cotton will very advantageously supplement the use of the iodine. Packing the vagina after the manner first recommended by the late Dr. Taliaferro, of Georgia, will aid in diminishing the hypertrophy. In hemorrhage from malignant disease the mildest styptics are to be preferred, since from the application of powerful remedies there will be greater liability to cause a slough which easily separates and produces a still greater hemorrhage. Glycerite of tannin applied upon cotton wool will often suffice. Sometimes touching the bleeding points with tinct. ferri chlor. will be beneficial. Sometimes a solution or the dry powder of per sulph. iron may be used. In applying the tincture of iron care is to be observed not to touch other tissues than those that bleed. If there is much necrosed tissue, the bleeding can best be checked by scraping as much of it away as possible with a cutting curette.

In hemorrhage in consequence of prolapsus uteri and other displacements, there is a passive congestion caused by obstructed circulation, hence it is necessary to place the uterus as nearly as possible in its normal position by a perfect-fitting pessary, which

is to be worn through the menstrual period as well as at other times.

If, in consequence of laceration of the perineum and vaginal walls, there is no support for a pessary, tampons of absorbent cotton or wool rendered aseptic can be worn during the entire inter-menstrual period, being renewed every two or three days and the patient placed in bed during the time of flow. It is advisable, as soon as the patient is in a fit condition, that a surgical operation be made for the purpose of restoring the lacerated parts. In hemorrhage from laceration of the cervix the same general directions should be followed that were last mentioned. Here, too, an operation should be performed as early as the condition of the patient permits.

It occasionally happens in cases of pelvic hæmatocele that the tumor neither disappears by absorption nor suppuration, but remains in a latent condition and then changes take place in its substance. Often in such instances a clear history cannot be obtained, the time of the effusion having been forgotten. When these effusions occur in the retro-uterine space they are sometimes mistaken for retro-version of the uterus, or, in some instances, are called chronic cellulitis. It is in these chronic hæmatoceles that menorrhagia often manifests itself.

Where uterine hemorrhage occurs in consequence of this affection, or of pelvic cellulitis, a more intelligent treatment can be instituted if a clear history of the case can be obtained. As a rule, pelvic hæmato-

cele soon disappears by either absorption or suppuration. Uterine hemorrhage is more frequent in pelvic cellulitis than in hæmatocele. In either of these affections if there is an excessive flow of blood from the uterus it is by reason of uterine congestion, the result of an obstructed circulation. The local treatment of these cases should be directed towards obtaining absorption of the exudates. For this purpose iodoform in suppositories either per vaginam or rectum can be advantageously used. Painting the vagina over the swelling with Churchill's tincture of iodine two or three times a week is equally efficacious and more generally preferred on account of the disagreeable odor of iodoform. In the intervals of making these local applications much benefit can be derived by means of tampons of either cotton or wool, but they should not be packed with sufficient firmness for their presence to cause pain. Tampons thus inserted by their pressure exert a very decided influence in promoting absorption. For the purpose of keeping up the constant alterative influence of iodine, the tampons or a portion of them should be saturated with iodide of potassium dissolved in glycerine. The free watery discharge which the glycerine causes is also of service for further promoting the absorption of the exudation and diminishing congestion. Copious douches of hot water should be made use of, the patient lying upon her back, or, as recently recommended by Dr. Foster, of New York, in the Sims' position.*

* Trans. Amer. Gynec. Soc., 1887.

It may be proper here to add regarding douches that the patient can be kept dry if a regular douche pan is used. If expense has to be regarded a serviceable one of tin can be obtained; if comfort alone is sought in connection with the administration of the douche, a rubber douche pan which can be inflated with air is preferable.

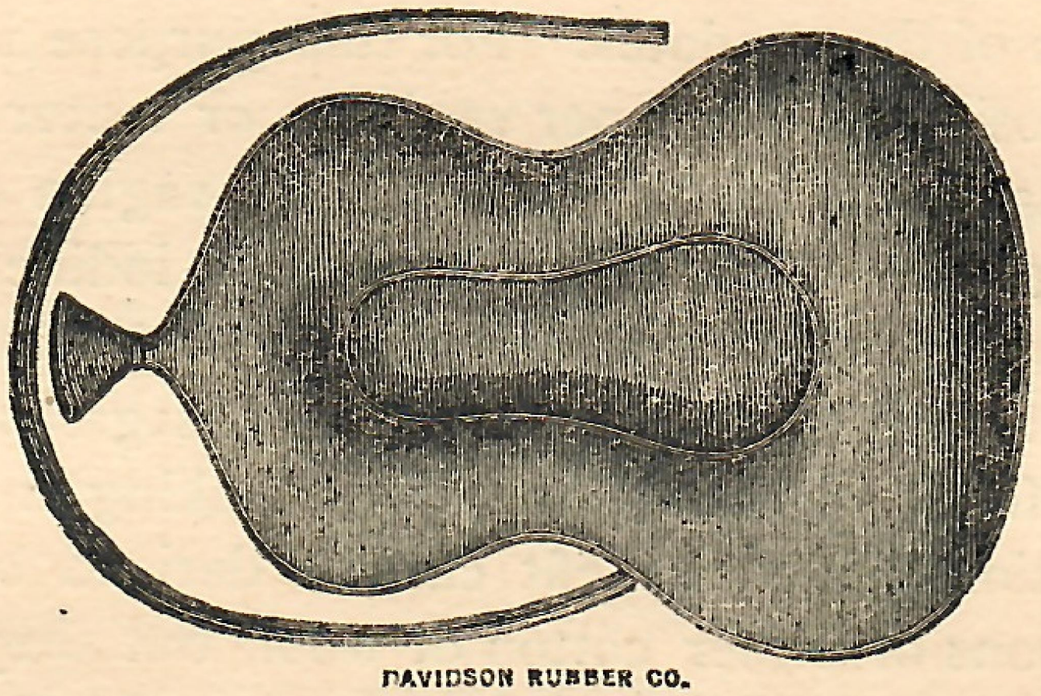

FIG. 7.—RUBBER DOUCHE.

The apparatus known as the Perfection-Douche (Fig. 8) has several qualities conducive to comfort, convenience and utility, one of which is that the fountain will give either a continuous stream or, by means of the attached bulb, a forcible intermittent stream.

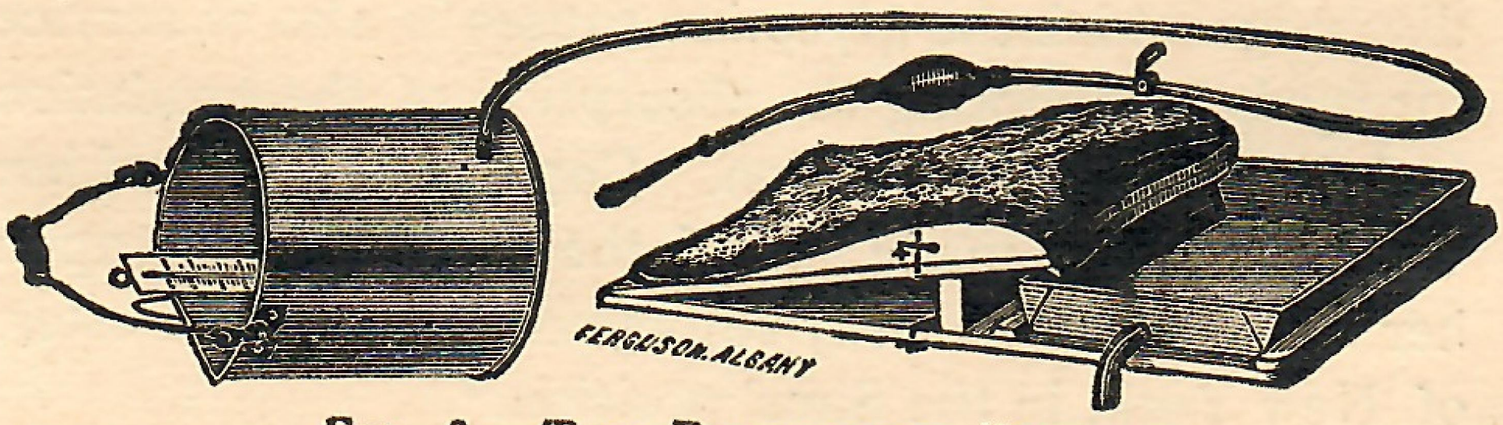

FIG. 8.—THE PERFECTION DOUCHE.

In those cases where menorrhagia occurs as the result of ovarian congestion and chronic enlargement of the ovary, the flow is either irregular or too frequent. In this class of cases obstinate constipation is often a cause as well as an accompaniment of ovarian congestion and demands special attention. The author believes that the primal cause of ovarian congestion, enlargement and displacement in very many cases is obstinate constipation. Parents and teachers and all who have young girls in their charge, should be impressed with the importance of the necessity for regularity in this respect, as irreparable damage is often effected in this regard in early girlhood. During the inter-menstrual periods ovarian irritation can be allayed and the circulation improved by the administration of bromides combined with digitalis.

DYSMENORRHŒA.

Painful or difficult menstruation has in general two sets of causes.

First constitutional and second local.

The systemic causes have their origin in either a depraved state of the blood, or an abnormal condition of the nervous system.

The local causes arise from an unnatural formation or unhealthy condition of the uterus, ovaries or Fallopian tubes.

Owing to the fact that it is often extremely

difficult to distinguish one variety of dysmenorrhœa from another or, in other words, one variety of painful menstruation possesses certain characteristics of some other variety, some writers have deemed it best and less confusing not to classify the different forms of this affection. But dysmenorrhœa is a prominent symptom of a variety of pathological conditions, and by classifying the varieties of this disorder it aids the physician in thoroughness of investigation, while a remembrance of them also assists in the instituting of more rational modes of treatment. Therefore the various forms will be classified as follows:

1. Neuralgic.
2. Congestive or inflammatory.
3. Obstructive.
4. Membranous.
5. Ovarian.

NEURALGIC DYSMENORRHŒA.

The first variety is a localized exhibition of a purely systemic condition and accompanied by or alternated with the characteristic symptoms of neuralgia in other parts of the body. It is caused by one or more of the following conditions.

1. Inherited neuralgic tendencies.
2. Chlorosis.
3. Anæmia.

4. Plethora.

5. Neurasthenia.

6. Enervating mode of living.

7. The peculiar blood states of malaria, gout, rheumatism, etc.

Symptoms and Differentiation.—The pain manifests itself before or after the beginning of menstruation and may cease when the flow becomes established or continue throughout the period.

Its location when in the pelvis is in the region about the symphysis and down through the lumbar and sacral regions. The pain may be reflected to some other portion of the body even quite remote. Of the distant points the head is perhaps more frequently the seat of pain and it will often be confined to one side for twenty-four to forty-eight hours when it will change to the other side, leaving the former comparatively free from discomfort. Occasionally it is a finger or a toe in which the pain seems to be concentrated.

In character it is fixed, sharp and often agonizing in its intensity. When in the uterus, it continues with changing severity, and although it may sometimes exhibit sudden sharpness it is never expulsive, as in the case of obstructive and membranous dysmenorrhœa. The neuralgic demonstrations which occur during the inter-menstrual period in other parts of the body, especially in the fifth pair of nerves, are present in some patients and absent in others.

The kind of tenderness which is consequent upon severe pain of several hours' duration may mislead at first and cause one to fear the existence of a pelvic peritonitis or other pelvic inflammation, but by careful observation the physician will soon be able to put aside any anxieties on that score.

The febrile symptoms of acute endometritis and the inter-menstrual signs of chronic congestion or hyperplasia of the uterus such as pain, leucorrhœa, and bearing down feelings will be absent.

CONGESTIVE OR INFLAMMATORY DYSMENORRHŒA.

This form of dysmenorrhœa arises from an unusual hyperæmia of the uterus and peri-uterine tissues which may expand into an active inflammation. In inflammatory cases it is not unusual for the morbid condition to involve both the ovaries and uterus, exceptionally the inflammation may be in the cellular tissue and possibly involve other tissues.

Causes.—The most common is exposure to cold; mental causes, such as sudden grief, joy, fright, may be super-added to the first named cause. Any of the causes named, where there is an unhealthy condition of the uterine tissues or the endometrium, may give rise to either the congestive or inflammatory variety. Uterine displacements, fibroid tumors of the uterus, pelvic cellulitis or peritonitis, or any obstruction to the portal circulation, may be the origin of this disorder.

Symptoms.—These vary in the onset somewhat, both in time and in severity, according to whether the causes are external influences or conditions within the body. The patient who has previously experienced no pain at the period may have been suddenly exposed to cold and dampness, or may have received a mental shock after the flow had begun and soon there is a diminution or cessation of the flow flollowed by febrile symptoms, nervousness, and extreme pain in the pelvis and also in the head. On the other hand, without any external cause the patient has a feeling of *malaise*, which speedily develops into the above state from four to forty-eight hours before the appearance of the flow.

In character, the pain is heavy, fixed and sometimes accompanied by a rectal or vesical tenesmus and diarrhœa. When the flow has become established, if it is free, the pain diminishes or may cease, but where an inflammation like pelvic cellulitis or endometritis exists the pain may continue throughout the entire period. Where the constitutional disturbances are not marked, the neuralgic and congestive forms of dysmenorrhœa are not easily separated. By physical examination one can usually differentiate between congestive and obstructive and ovarian dysmenorrhœa. Occasionally expulsive pains would seem to indicate the presence of some obstruction in the canal which cannot be found on examination. The canal is of normal size, but certain unhealthy conditions of the

endometrium appear to change the character of the blood constituents so that clots are formed within the uterine cavity and are productive of pain in their passage. Patients suffering from the forms of dysmenorrhœa under consideration are usually the subjects of inter-menstrual symptoms of sufficient severity to indicate uterine or ovarian disease. With such persons the inter-menstrual symptoms are manifest in the form of painful paroxysms, occurring midway between the periods. These attacks of pain appearing between the times of the monthly flow are frequently very severe.

OBSTRUCTIVE DYSMENORRHŒA.

Of late years a marked change has taken place among gynecologists in their views concerning the causes of painful menstruation. Formerly the prevalent belief was that the majority of cases of dysmenorrhœa were due to some obstruction, either congenital or acquired, within the uterine canal, and more frequently due to uterine flexures than any other cause. When flexion of the uterus is very pronounced it may, to a certain extent, prevent a free flow of blood from the uterus. Clinical experience teaches us, however that there may exist a most pronounced uterine flexure, and yet the patient never suffer from dysmenorrhœa. There is frequently a temporary obstruction of the internal os uteri caused by the swollen condition of the mucous membrane at that point at the period of men-

struation; there is also, sometimes, a similar condition caused by spasm of the circular fibres surrounding the os internum at the time of menstruation. But the majority of cases of obstructive dysmenorrhœa are to be found in connection with uterine displacements or some deformity of the uterus, either congenital or acquired. Pronounced retro-flexion, where the body of the uterus is crowded down upon the sacrum, is a common cause by reason of the circulation being thus interfered with. A contracted condition of the os externum, if very pronounced, may cause dysmenorrhœa by obstructing the flow of blood. This condition of the os is sometimes found where patients have previously been treated by caustics, or there exists cicatrization and stenosis of the os externum, from any cause. Congenital contraction of the os externum is usual with a conical and elongated cervix—a condition of things quite common with dysmenorrhœic and sterile women.

If, by reason of any obstruction, there is retention of the menstrual blood, there will be uterine contraction and pain. Obstruction at the ostium vaginæ by preventing a free flow and causing a portion of the blood to be retained within the uterus, may give rise to this form of dysmenorrhœa.

Symptoms.—The principal symptom of obstructive dysmenorrhœa is severe pain of an expulsive character, and closely resembles the kind of pain which has been designated as uterine colic. The pains usually come

on prior to the beginning of the flow and continue until it is well established, after which they gradually subside and the discharge will continue without pain. Byford is of the opinion that in many instances the great congestion accompanying the effort at discharge causing a sort of erection of the uterus, not only overcomes the stenosis but it temporarily, to a great extent, corrects the position or deformity; without this correction the relief would not be complete.

Diagnosis.—The diagnosis can only be determined by physical examination. By this means the physician can determine whether there is any obstruction in the vagina in consequence of disease, accident, or some congenital deformity. By examination he can determine also as to the existence of any obstruction in the uterine canal and the cause.

MEMBRANOUS DYSMENORRHŒA.

By this term we designate the expulsion of a membrane, more or less organized, from the uterus at the menstrual period. From the earliest times up to the present a variety of theories have been set forth as to the pathology and the cause of this symptom which may be called one of the phenomena of menstrual life. This membrane was formerly thought to be the product of inflammation and was simply a false membrane similar to that formed in diphtheria or membranous croup. Later, Oldham advanced the theory that there was a separation of the mucous membrane or lining of

the uterus which was expelled with a subsequent menstrual nisus. The cause of this condition was thought to be a peculiar ovarian irritation.

Virchow has designated this membrane, "the menstrual decidua" and considers that in its formation it resembles the decidua of pregnancy. Simpson regarded its formation as a normal function of the uterus but abnormal in time, circumstances, frequency, and degree. More recently, Dr. John Williams' desquamative theory as the cause of menstruation if accepted might serve as an explanation for the appearance of this membrane. If, on the other hand, Engelmann's theory of the proliferation and the subsequent exfoliation of the superficial epithelial layer by fatty degeneration be regarded as the true cause of the menstrual flow, then by simply extending a normal process to an abnormal degree, so that fatty degeneration takes place rapidly and upon the uterine side of the membrane first, we would have a membrane cast off as a whole or in large fragments instead of the imperceptible process by which normal menstruation goes on.

There are numerous other theories which account for the formation of this membrane but in reality there is very little beyond the knowledge of its existence about which we are positive. In appearance there may be large fragments, or it may perfectly represent the shape of the whole interior of the uterus. There are three openings, the external one and one for each

of the Fallopian tubes. Its uterine surface has a rough shreddy appearance and the other is smooth.

Symptoms.—The pains which accompany the extrusion of this membrane are, as one would expect, severe, expulsive, and are often described as colicky pains. Before the membrane has been expelled, the physician may consider the case one of obstructive dysmenorrhœa, but the appearance of the membrane soon makes the diagnosis easy. The patient also suffers from extreme nervousness and hyperæsthesia. Sometimes the pain lasts from twenty-four to forty-eight hours. Again, the pain while tolerably severe, is not extreme, neither is it very lasting. After the expulsion of the membrane, there may be a purulent or sanguino-purulent discharge which lasts for several days.

Differentiation.—There is usually very little trouble differentiating this disorder from other conditions which resemble it.

OVARIAN DYSMENORRHŒA.

Some have objected to this term as being a misnomer and with some show of reason too, if we admit as many do, that menstruation is a direct function of the uterus, while we know that it does not cause ovulation, and further, where the ovaries alone are affected the pain precedes the beginning of the flow and diminishes as the latter continues. However, there is a connection between the two since the hyperæmia

preparatory to the menstrual flow is the cause of the ovarian pain and in the mind of the patient, at least, the two will always be associated together; therefore, although pre-menstrual ovaralgia or a similar term might more definitely express the condition or rather the symptom under consideration, for convenience the old term will here be retained.

Frequency.—Formerly after neuralgia or the abnormal blood states had been excluded as causes of pain at the time or preceding menstruation, the uterus was always considered to be the offending organ, and there is no doubt but many a cervix only slightly flexed has been slit up to relieve a dysmenorrhœa which was thought to arise from an obstruction of the canal through this flexure when no real obstruction existed, or if there was one, it was entirely disproportionate to the pain.

In point of frequency this class should stand next to obstructive and congestive varieties which occur oftenest of all.

Symptoms:—The nervous phenomena which accompany this form of dysmenorrhœa are often as startling as the pain is severe. The pain appears from one to five days before the flow and lessens as the latter becomes established. In kind it is dull—a heavy ache—is located in the ovarian regions and is peculiarly liable to extend down the inside of the thighs. The nervous symptoms vary all the way from a slight nervousness to the well marked forms of hysteria, hys-

tero-epilepsy and chorea. The amount of pain is usually in an inverse proportion to the quantity of blood lost, and frequently there is an inverse ratio between the severity of the pain and the number and severity of the nervous symptoms.

Diagnosis:—The symptoms of this form of dysmenorrhœa do not so clearly define the cause that produces them as the obstructive or membranous, and it is often difficult to distinguish it from the congestive variety which has not attained such a degree as to be considered inflammatory. Frequently there has been no sudden cold, severe mental or physical shock, there are no expulsive pains, no marked nervous phenomena, to indicate the existence of uterine congestion, or obstruction, or ovarian irritation, and only physical examination can decide the cause of the pain. The two first conditions; viz., uterine congestion or obstruction having been excluded, the physician proceeds to investigate by means of, first abdominal palpation, second, vaginal touch, third, conjoined manipulation. The patient is placed in a semi-prone position and one, or if possible two, fingers are carried up into the posterior cul-de-sac. There at the back, or more frequently at the left side, a small ovoid body will be felt lying in the lower part of Douglas' pouch. Sometimes only an indistinct conception of the shape of this body is to be obtained by the examining finger, but if the other hand press firmly on the hypogastric region it will be brought more closely in contact with

the vault of the vagina. Very frequently, however, if the rectum is empty a far more satisfactory examination can be made by it. This body will be found to be an enlarged congested ovary in a state of extreme tenderness. If it can be grasped between the ends of the examining fingers, the pain produced by this pressure will be observed by the expression on the patient's face and by other signs, to be that she is suffering exquisite. The latter is usually described as producing nausea or sometimes, "it seems to go through her," producing a strange, very uncomfortable sensation in the top of the head. Although this extreme pain accompanied by nausea is usually considered diagnostic of a congested and an enlarged condition of the ovary, in rare instances one meets with cases in which the tenderness is not excessive, neither is there a nauseated feeling produced by pressure although the ovary is congested, enlarged and prolapsed; but the nervous symptoms accompanying this condition are as severe and distressing as in the one previously mentioned. In still other instances the ovary is enlarged but has not become prolapsed, consequently it may be very difficult to reach. Hence, if the examination is not exceedingly thorough one may fail to detect any abnormal condition. The author would especially impress upon the mind of the reader the importance of examination per rectum, as by this means, a more thorough knowledge of the true condition can be acquired than is attainable by means of vaginal touch alone.

Treatment.—So far, the different varieties of dysmenorrhœa have been discussed separately and distinctly, not because defined thus clearly in clinical work, but because we are more easily enabled to show the possible as well as the probable effects as they are related to certain causes. There *are* well-marked typical forms, but, as a matter of fact, we do not often meet with them. What we do find, is cases in which there is a greater or lesser commingling of two or three varieties. As an illustration: An anæmic neurasthenic woman may have a retroverted uterus which apparently causes painful menstruation, but in such a case the dysmenorrhœa is a combination of causes. The blood is impoverished and its circulation obstructed, there being several conditions which together may give rise to a neuralgic and congestive dysmenorrhœa. But in each case there is a perceptible and often a marked predominance of the set of symptoms belonging to one variety, a definite conception of which will usually lead us to a discovery of the chief cause; and this should be earliest sought after, for there is no functional disorder requiring more diagnostic accuracy in order to insure success in treatment, than that of painful menstruation.

The treatment is both constitutional and local. There is also a variation of methods pursued which is dependent on time, that is to say, the treatment during the menstrual period differs from that of the intermenstrual period, the former being mostly palliative, while the latter is principally curative.

Constitutional Treatment.—In the great majority of cases of dysmenorrhœa in young girls, or those under nineteen, painful menstruation is due to a blood dyscrasia, faulty nutrition, or an atonic condition of the nervous system. Consequently constitutional treatment alone is required. This is also true of neurotic patients of maturer years.

It is quite commonly believed that dysmenorrhœa occurs more frequently among those living in affluent circumstances than among the poor. This belief is in the main correct and yet the severest forms of dysmenorrhœa and uterine and ovarian disorders are seen among over-tasked servants and shop girls. Both classes here alluded to are debilitated in consequence of bad hygienic surroundings.

The author does not agree with some of his contemporaries who charge intellectual work with being the cause of most of the disorders of the generative organs of young women in particular, of which disorders dysmenorrhœa is the most frequent accompaniament. It is his belief that there has been a great deal of nonsense written concerning intellectual development interfering with natural development of the generative organs and the natural performance of their functions. It is not the brain work *per se* but the lack of proper and sufficient physical exercise, producing thereby a one-sided development which proves injurious. There is not enough muscular activity nor enough fresh air breathed to preserve a

normal tone of the muscles and digestive organs and an active circulation of the blood, thereby furnishing the conditions under which undeveloped parts continue their growth or developed organs maintain a healthy condition. The brain needs active, healthy, but not over-taxing work as well as the body. Instead of attributing such disorders as are under consideration to intellectual labor while both mind and body are in process of development, it should rather be attributed to the violation of hygienic laws —another evil among the many benefits of modern civilization.

Patients, particularly young girls, suffering from dysmenorrhœa are frequently anæmic or chlorotic and possess a nervous organization more than ordinarily susceptible to external disturbing influences. They need, first of all, when these conditions are present, a plain but nutritious and digestible diet, regular hours, both as regards eating and sleeping, and as much open air and exercise as they can take without fatigue. Digestion and the condition of the blood are improved by the tincture of the chloride of iron with hydrochloric acid or if the stomach seems intolerant of acid mixtures some of the preparations of the citrate of iron and quinine, or lactate of iron combined with chlorate of potassium. A little later, if there is a neuralgic element present, this course is to be alternated or even combined with the prolonged use of strychnia or belladonna. Phosphide

of zinc with nux vomica in pill form is excellent in its effect upon the nervous system.

In anæmic or chlorotic patients suffering from endometritis or areolar hyperplasia, mercury and arsenic with iron, exert a beneficial influence not only by their primary, alterative and tonic effect upon the general system, but also by a secondary effect upon the diseased uterine mucous membrane and parenchyma:

℞ Hydrarg. chlor. corros., gr. ij.
Liq. arsenici chlor., ʒ j.
Tr. ferri chlor.,
Acidi hydro-chlor., ää ʒ ij.
Syr. simp., ℥ ij.
Aquam, ad ℥ vj.

M. Sig. Dose, one teaspoonful.

The plethoric patient needs a strict diet and such depletory measures as cathartics, salines being preferable, and as there is often a scanty flow, she will be benefited by regularly stimulating the portal circulation about a week previously to the period, with one of the mercurial preparations previously mentioned. A saline the following morning may or may not be required.

In a monograph written for physicians it is unnecessary to any more than allude to the possibility of a neuralgic dysmenorrhœa originating in a malarial toxæmia, or the rheumatic or gouty diathesis. Wearing flannel to keep the skin warm, baths followed by

brisk rubbing to increase its activity, and a sojourn in a warm climate during the winter months, have each a certain value. But of all remedies, especially if there is an inherited neuralgic tendency, or there is neurasthenia, few compare and fewer excel in efficiency that of a sea voyage. All, however, cannot avail themselves of its benefits.

When there seems to be a lowered tone of the nervous system, nerve tonics may be very advantageously supplemented by the use of electricity, a mild galvanic current down the spinal column for ten minutes and a stronger current through the pelvis or as nearly as possible along the course and about the terminus of the nerve which is the pain conductor. The whole sitting should not exceed twenty-five minutes, and often fifteen is as long as a nervous patient will bear, especially in the beginning of treatment.

PALLIATIVE MEASURES.

As every physician knows by experience, he is frequently not consulted until the patient sends for him to relieve her pain.

Should the dysmenorrhœa be simply an accidental attack due to external causes, then rest in bed, diaphoretics and sedatives are indicated. The following prescription may be administered:

R Potassii acetat., ʒ ijss.
Spts. ether nit.,
Aquæ, ää ℥ j.
M. Sig.—Take a teaspoonful every three hours.

The following sedative suppository will answer a good purpose:

℞ Ext. belladonnæ, gr. ss.
Pulv. assafœtidæ, gr. xv.
Ol. theobrom., q. s.

M. et ft suppos. No. iij.

Sig.—One to be inserted into the rectum once in eight hours while pain continues.

The following will often be of service in relieving pain:

℞ Ext. hyoscyami,
Camphoræ, ää gr. x.

M. et divide in capsulas No. x.
Sig. Take one every hour till relieved.

The above are especially useful if the pains are spasmodic as well as severe, or the following suppository will often relieve pain, unless severe, and is particularly beneficial if there is constipation:

℞ Ext. stramonii, gr. vi-xii.
Ol. theobrom., q. s.

M. et ft, suppos. No. xii.
Sig. Insert one in the rectum every twelve hours.

These accidental congestions are often the starting point of some chronic affection of the uterus more commonly involving the endometrium, therefore, if the constitutional symptoms are marked, the physician should, immediately following such an attack,

prescribe such a course as will allay irritation and diminish congestion. For this purpose the use of the bromides will be of service and the use of hot douches twice daily should be persevered in so long as needed. In the meantime the bowels should be kept soluble by means of laxatives of which some of the mineral waters, such as Hunyadi or Friedrichschalle are preferable.

Another palliative remedy is cannabis Indica; twenty-five drops of the tincture or one-half grain of the solid extract may be given every three hours till there is relief.

It is advantageously combined with assafœtida or hyoscyamus as follows:

℞ **Ext. cannabis Indicæ, gr. j.**
Ext. hyoscyami, gr. vj.
Ext. valerianæ, gr. iij.

M. et divide in pilulas No. vj.
Sig. Take one every three hours till relieved.

Chloral is sometimes useful; ten grains is administered by the stomach or fifteen grains in five or six ounces of warm starch-water every eight hours.

The anti-spasmodic as well as alterative properties of cimicifuga racemosa and pulsatilla make them valuable within certain limits in all forms of dysmenorrhœa.

The cimicifuga should be begun two or three days prior to the beginning of the flow and continued at brief intervals through the entire period.

The following prescription is a convenient form for its use:

℞ Ext. cimicifugæ racemos., fl., ℥ iss.
Elix. taraxici comp., ℥ ijss.

M. Sig. Two teaspoonsful every four or six hours.

The pulsatilla may be administered simply in water or as follows:

℞ Ext. pulsatillæ, fl., gtt. xlviij.
Aquæ menth. vir., ℥ ij.

M. Sig. Teaspoonful every two hours while pain lasts.

Apiol has been found especially beneficial in dysmenorrhœa of a neuralgic type, and is useful also in the other varieties of painful menstruation, either with or without a neuralgic element. It is a yellowish, oily substance obtained from parsley and put up for use in capsules, one of which is taken twice a day during the period. Dr. Fordyce Barker holds this remedy in high esteem.

It has lately been discovered that the new antipyretics — antifebrin and antipyrin — are also nerve sedatives of considerable power. While antifebrin is useful in the pains of locomotor ataxia, antipyrin seems likely to prove a specific for neuralgia. Clinical experiments have thus far been mostly confined to the various forms of neuralgia affecting the fifth pair and the dorsal, lumbar and sacral nerves, particularly in cases of lumbago and sciatica. In the treatment of dysmenorrhœa the author's experience with antipyrin

has as yet been too limited to be able to speak very decidedly or dogmatically as to the greatness of its virtues. In one case of a young girl suffering from dysmenorrhœa, the effect of half a drachm of 50 per cent. solution of antipyrine administered hypodermically was almost instantaneous. The effect is as rapid and as complete as from morphia. Physicians who have used antipyrin quite extensively in painful menstruation speak in high praise of its efficacy.

From four to eight grains is the ordinary limit of hypodermic doses. In some cases of lumbago and sciatica antipyrin has proved curative as well as palliative. Hence we ought to expect good results from it in neuralgic dysmenorrhœa, especially if the neuralgia gives any evidence of having a rheumatic origin. Our expectations in regard to this remedy as a specific may end in disappointment, but it has already shown an efficacy which should encourage us to continue our experiments. Thirty to fifty grains is given daily, divided in two or three doses, for several weeks. The system does not soon develop a toleration of the drug, but when it does a few days discontinuance serves to enable the remedy to take a fresh hold. In most cases where the neuralgic element predominates, purely systemic measures are the most efficacious ones, but occasionally local applications produce a revulsive effect upon the peripheral nerves which results in decided benefit.

Occasionally the administration of an opiate be-

comes almost a necessity, but in this quick relief which chloral and opium often afford lies the danger. The same may be said of the other powerful stimulants and narcotics. It is well known that many dysmenorrhœics have recourse to them during the menstrual period, and it is in this way that not a few of the alcohol and opium habitues are made. It has been well said:* "These remedies do not cure. They simply add fuel to the flames by inducing a condition of the nervous system—a subjective state of pain exaggerating her own sufferings and seeking relief at any cost—as difficult to overcome as the original disease."

Local Treatment.—Although many cases of dysmenorrhœa from whatever cause can be cured by constitutional means alone, the fact, nevertheless, remains that there are local conditions which can be remedied only by having recourse to local treatment. The local conditions heretofore mentioned as causing dysmenorrhœa will not be considered *seriatim* strictly, but the order in which they have been mentioned will be adhered to with as much precision as is deemed advisable for a practical consideration of the subject.

In unhealthy conditions of the uterine parenchyma or the endometrium, and in some cases where there is hyperæsthesia at or about the internal os, as

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* C. D. Palmer, Trans. Am. Gyn. Soc., Vol. viii., Art. Dysmenorrhœa.

well as in some instances where there is a lack of development of the entire organ, the passage of a sound to the fundus several times a week previous to the menstrual period will often be of great benefit; this is particularly beneficial in overcoming the hyperæsthesia of the uterine canal at the os interum. In cases where an active congestion of the uterus exists, causing tenderness and particularly if it seems to be less movable than is normal, local treatment to the uterine cavity should not be undertaken. In such a case, in addition to the constitutional measures which have been mentioned, local treatment should consist of hot douches and such applications within the vagina as will cause the absorption of any of the products of congestion or inflammation and improve the circulation of the blood within the pelvic organs.

In many instances the only local application necessary for bringing about the desired condition in addition to the douches is the insertion of tampons of cotton or wool saturated with glycerine and boroglycerine. Frequently the thorough dusting with boracic acid of tampons already saturated with pure glycerine will suffice. The use of boracic acid upon vaginal tampons where they are liable to remain for any length of time is of great service in preventing fermentation of the glycerine and decomposition of the secretions, which otherwise is liable to occur. Applications such as have just been described should be made every alternate day or three times a week, and

the hot douche should immediately follow the removal of the tampons.

This treatment will produce, while the tampons are *in situ*, a profuse watery discharge from the vagina, thereby relieving the over-distended vessels, and also cause the tenderness to disappear. Not unfrequently where there are quite firm peritoneal adhesions rendering the uterus immovable and giving rise to pain and tenderness, the plan of treatment just described will be efficacious in causing the symptoms just enumerated to subside within a few weeks.

In the class of cases just described, before intra-uterine treatment of any kind is instituted there should cease to exist any indication of circum-uterine inflammation or congestion. This being effected, further examination may be requisite; as, for instance, there may be leucorrhœa with granular erosion about the external os, and if a sound or probe is passed into the uterine canal, there will usually be found a pronounced hyperæsthesia at the os internum. In some of these cases, there is neither a flexure or a growth by which the lumen of the canal is encroached upon nor, in fact, does its calibre seem to be diminished, yet there are symptoms of obstruction. The pains are spasmodic, although not really expulsive. In such cases there usually exists an increase of tissue somewhat indurated in character around the os internum, extending in the form of an inverted cone down the cervical canal especially on the

anterior wall. The nerves supplying the canal around the os internum are enclosed and pressed upon by this hardened tissue and the fluxion consequent upon the menstrual nisus increases the pressure to a degree which results in severe pain. In other cases of dysmenorrhœa, for which the same treatment, that remains to be described, is applicable, the uterus is not fully developed; its neck is pointed and indurated, with frequently one lip longer than the other, and there is often an anteflexion of its body. In such uteri, if a sound or probe is passed into the canal, there is, as a rule, hyperæsthesia at the os internum the same in character as in uteri that are enlarged.

In both classes above mentioned, to relieve pressure and diminish hyperæsthesia an excellent result is obtained by forcible dilatation; this is partially due to the revulsive effect of stretching over-sensitive nerves and partially to producing absorption of indurated tissue and thereby liberating confined nervules. For this purpose, the Sims or Ellinger dilator with diverging branches, or Peaslee's (Fig. 9), (for slight dilatation), or Hank's dilators with their various sized bulbs may be employed.

The dilatation can frequently be made without the aid of an anæsthetic, but in some cases the region about the os internum possesses such an hyperæsthesia as to necessitate its use. Occasionally an anæsthetic is required on account of the nervousness or timidity of patients.

For the purpose of dilating, the patient should be placed in either Sims' or Simon's position. In the former, Sims' speculum is introduced, while in the latter Simon's instrument is used. The patient being placed in position, the vagina should be thoroughly wiped out with some aseptic preparation, such as a solution of bi-chloride of mercury one to three thousand, or carbolic acid one to forty. All instruments should be first thoroughly clean, and in hos-

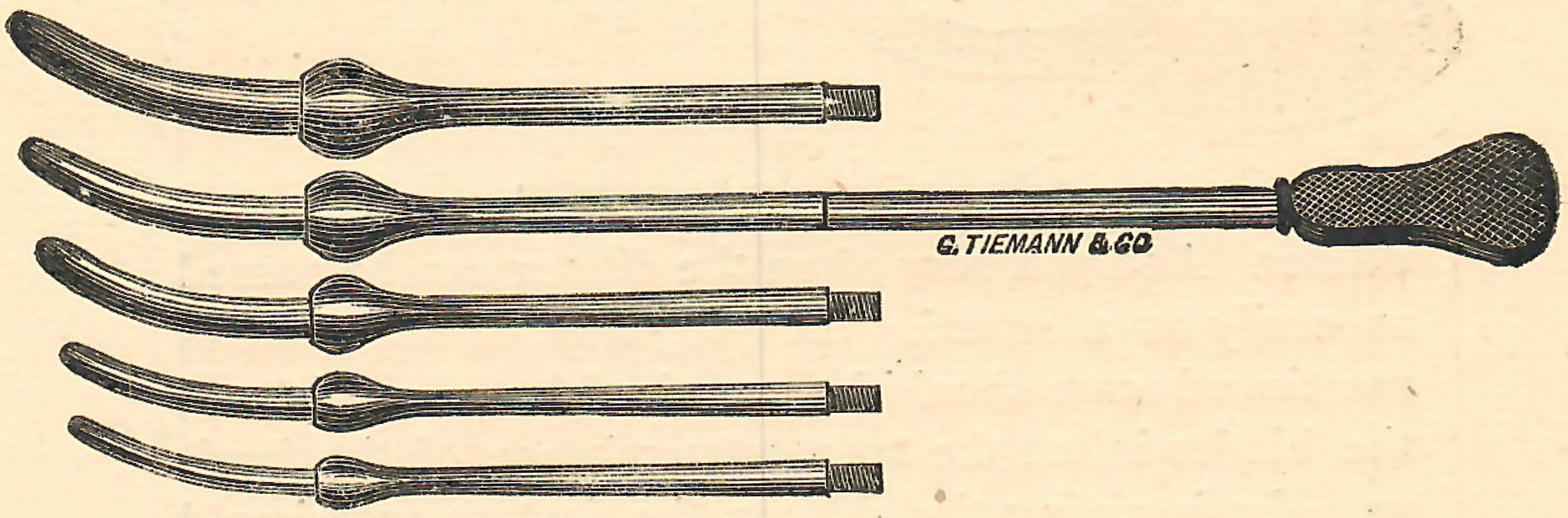

FIG. 9.—PEASLEE'S DILATOR.

pital or dispensary practice more especially it is advisable that they be kept in carbolized water or in alcohol, the latter being the author's preference. In either position the cervix should be held firmly by means of a vulsellum or a double tenaculum. If the Hank's dilator is employed the smallest size is introduced first and allowed to remain until the pain from the dilatation at the os inernum has nearly passed away. The next size larger is then inserted.

Three sizes are usually sufficient and frequently the smallest size suffices for the first dilation. If a Sims' or Ellinger's dilator or one of similar style is to be used it may first be of service to pass a uterine sound to the fundus for the purpose of facilitating the use of the

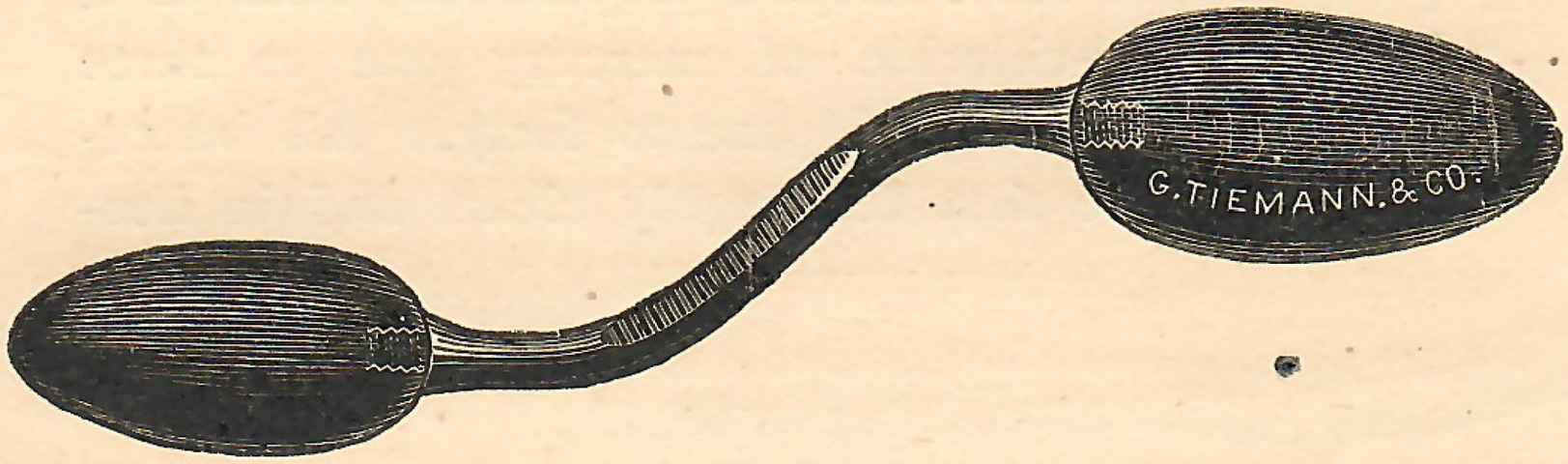

FIG. 10.—HANK'S DILATOR.

dilator. And yet, very often the dilator can be passed as easily as a sound. In using any of the dilators mentioned care should be exercised lest the points of the blades injure the mucous membrane of the fundus. In inserting the dilator the instrument should be allowed to ascend with the uterus as far as the latter's attachments will allow for the purpose of preventing the slipping out of the blades when they are separated. For this purpose also the vulsellum or tenaculum should hold the uterus as firmly as possible. As soon as dilatation begins the physician should carefully watch the behaviour of the instrument that he may regulate the dilatation. The amount of physical power required to effect the requisite amount of dilatation must of necessity vary considerably. In undeveloped uteri but little force is requisite while in

other cases where there is considerable hyperplæsia much more is required.

Ordinarily the blades of the dilator require to be separated about one-third of an inch. The Ellinger's dilator improved by Goodell, has a scale in the handle by which means the operator can tell with precision the distance the blades are separated. After dilata-

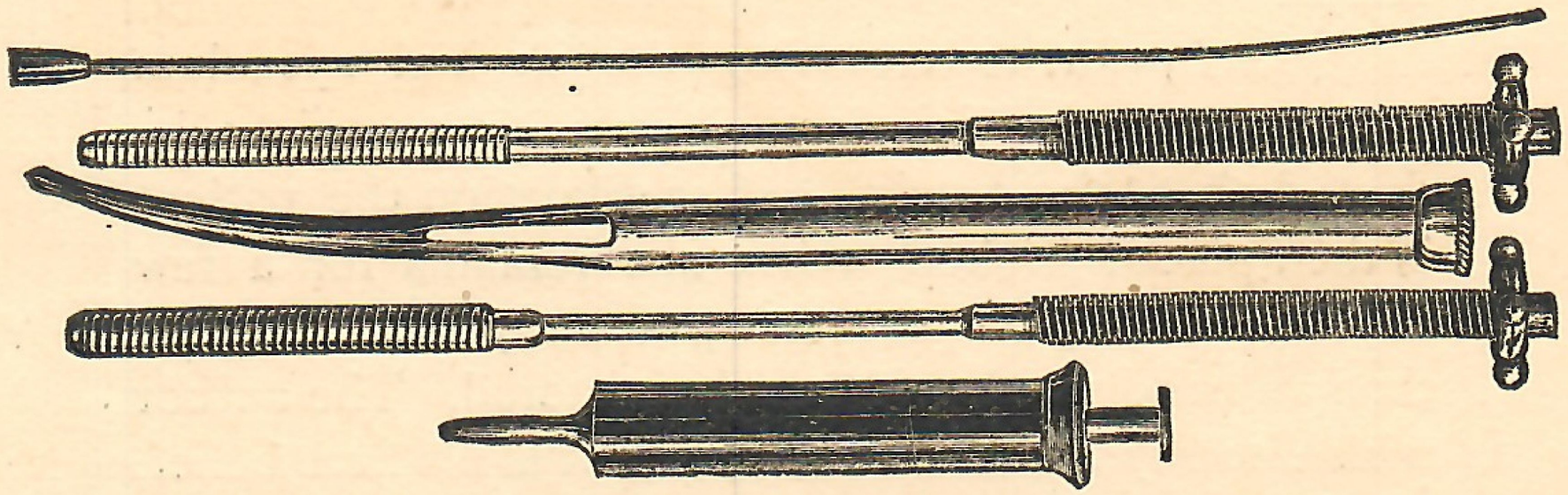

FIG. 11.—MOLESWORTH'S DILATOR AND INTRA-UTERINE SYRINGE.

tion has been effected the endometrium of the body should be anæsthetized by the local application of carbolic acid. This is done by wrapping an applicator with cotton which is saturated with carbolic acid and then squeezed quite dry to prevent the application of an excess of the acid. This can be very neatly accomplished by using a cervical protector. The author frequently uses for the same purpose and in a similar manner the iodized phenol thus obtaining the

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*** The three middle figures of the cut (No. 11) represent the dilator; the top and bottom figures are a device for intra-uterine applications.**

anæsthetic properties of the carbolic acid and the antiseptic and alterative properties of iodine. If the endometrium is very sensitive carbolic acid alone is probably the best application. But in undeveloped uteri, if not sensitive, the saturated tincture of iodine may be applied on account of its stimulating effects and thereby aiding in the further development of the uterus.

Just prior to removing the vaginal speculum a few grains of iodoform may with propriety be dusted about the cervix. After dilatation the patient is then placed in bed where she remains for a few days. If the pain does not pass away within a short time an anodyne should be administered. The author wishes to say here, *en passant*, that it is his firm belief, based upon many years of experience and observation, that patients thrive and recover much quicker from surgical operations, whether minor or major, without the administration of opiates.

In patients who have been under treatment long enough for the physician to become acquainted with the amount of tolerance to interference which the uterus possesses, he may *sometimes* feel justified in making dilatation in his office, but unless his experience with his method and with his patient has been extensive enough to give him a feeling of surety and safety upon this point he should not attempt it. The prudent physician will usually insist upon making at least the first dilatation at the patient's home. There is

another point which the author deems of the greatest importance, as bearing upon not only this operation, but all operations within or about the uterus, viz.: that before any procedure is contemplated the physician should thoroughly examine the retro-uterine space for the purpose of ascertaining if there has been any previous inflammation about the uterus or in the uterine adnexa. For this purpose a simple vaginal examination will not suffice. A digital examination should be made per rectum, it being previously washed out by an enema, nor should the physician be satisfied with a vaginal examination with the patient in the dorsal position. The patient should be placed in a semi-prone position, making no special difference whether on the right or left side, that being a matter of convenience. A distended Fallopian tube or an enlarged ovary may be unsuspected, or a previous pelvic inflammation, which has been so slight as not to have been considered by the patient, may exist notwithstanding. Should either the first or the last conditions be present a forcible dilatation of the cervix, though comparatively safe at other times, might now be the lighted match placed beneath the waiting tinder.

Usually a period of from seven to ten days should intervene before another dilatation. Sometimes as many as three dilatations can be made with safety between the menstrual periods. If there chances to be a long-standing disease of the endometrium, dilatation may be required a number of times before any signs

of improvement are manifest. The improvement of the patient will depend largely upon the state of her health.

In case there are any complications particularly of an acute character, like vaginitis, acute catarrh of the endometrium, or any localized pelvic inflammation, they should first be treated to a successful termination before having recourse to dilatation, which might speedily light anew the inflammation.

If dilatation has the desired effect the physician will usually observe, with the exception of undeveloped uteri, that the neck presents a shortened appearance and the axis of the canal assumes its normal direction, while the secretions of the cervical glands will present a transparent appearance instead of a yellow, opaque appearance of disease. In case the treatment is effectual, a uterine probe can be passed without eliciting any signs of pain.

Dysmenorrhœa, in consequence of displacement of the uterus, is of frequent occurrence. Among women who have not borne children the most common displacements are ante-flexions or ante-versions. It is possible that the caliber of the uterine canal may be diminished at the point of flexion, but if that is the case, it is not necessary to have recourse to a surgical operation with a hysterotome or other cutting instrument, has been practiced so extensively in the past. If there is a uterine flexion above the internal os there will be painful menstruation. Clinical observation

has taught that, usually, the above named symptom is not manifested if the flexion is at the juncture of the neck and body; the cervix in these cases being thin and long, sometimes bent quite acutely, and although such women are usually sterile, they do not on account of this condition of the uterus always suffer from painful menstruation.

There is generally in women with uterine flexion above the neck, a condition of health much below par the difficulty having its starting point at the beginning of menstrual life, consequently, the physician's prognosis cannot be as favorable as it would be in dysmenorrhœa from other causes. The first indication is to straighten the uterine canal and maintain the body of the uterus in its normal position. The many surgical procedures which have been devised for such cases will not be here discussed. The author will simply state what he considers is the best course to be pursued in each case. In many instances, the flexion can be overcome by forcible dilatation. The treatment of uterine flexions does not come strictly within the province of this paper; and yet, in considering painful menstruation associated with, or depending upon them, it is not out of place to mention some of the means of cure. The author is not in favor of cutting operations except in certain forms of congenital or acquired atresia of the uterine canal. In a very few cases, more particularly where there is lack of development, the intra-uterine stem pessary may prove of service, and

yet in all probability a better mode of treatment in deficient development of the uterus, either with or without flexion, is first forcible, rapid dilatation to be followed by local stimulating applications and galvanism.

In dysmenorrhæa with ante-version of the uterus the pain is doubtless due to obstruction of the circulation of the blood instead of any diminution of the calibre in the uterine canal—it really being a form of congestive dysmenorrhœa. In chronic cases the adjustment of the pessary which maintains the uterus in its normal position, thus permitting an unobstructed circulation, is without question the proper treatment. Many times one of the Emmet or Albert Smith pessaries, or some of their modified forms, if perfectly fitted, will suffice. But on the other hand, oftentimes some other variety of pessary particularly adapted for forward displacements of the uterus will be required, one of the best being Gehrung's ante-version pessary.

In painful menstruation with retro-version and prolapse of the uterus the pain is also generally in consequence of an obstructed circulation. If there exists a general pelvic congestion to which is added the menstrual fluxion, there is often pain in the uterus and one or both ovaries. In such instances, in addition to pursuing the general plan of treatment which has already been alluded to, it usually becomes requisite, before a cure, or even relief can be obtained, to adjust a pessary that fits and retains the uterus in

its normal position. Patients frequently say that they cannot wear any kind of pessary, having attempted it many times. Sometimes this may be the fault of the physician for nothing is truer than that the physician who has mastered the art of fitting pessaries perfectly has mastered the most difficult part of the mechanics of gynecology.

Where dysmenorrhœa seems to be caused by the existence of uterine fibroids or polypi, the treatment must depend upon the condition induced by the adventitious growths. If there is obstruction from fibroids, dilatation will usually be of benefit. If any form of intra-uterine growths of small size cause painful menstruation they should be removed if it can be done by ordinarily safe methods.

Occasionally cases of dysmenorrhœa are met with, in consequence of partial vaginal atresia. This abnormality may be congenital or the result of some form of disease, not infrequently syphilis. This condition may be treated by dilatation by means of tents or, what is better, bougies of graded sizes or, in some instances, by incising the obstruction. If there is an unmistakable syphilitic taint, constitutional treatment will be demanded as well. Occasionally painful menstruation is caused by an imperforate hymen in which event the hymen should be incised, but extreme caution is requisite on the part of the physician, particularly if there is much accumulation of the menstrual fluid. The best plan is to aspirate the fluid before

incising the membrane for fear that the moment the atmosphere comes in contact with the uterus contraction will be excited and by a sort of regurgitation the menstrual fluid will be forced through the Fallopian tubes, which under such circumstances are usually dilated. This is, undoubtedly, the reason of fatal results ensuing after the simple incising of the hymen.

Membranous Dysmenorrhœa.—There is so little unanimity of opinion concerning the true origin of membranous dysmenorrhœa and so little exact knowledge of its causes that we have but a small and unstable foundation upon which to base treatment. Patients suffering from this disorder are frequently neurotic and are in a debilitated condition as regards the general system. Therefore, the general treatment mentioned under the head of constitutional treatment would be indicated. Alterative applications to the endometrium, such as Churchill's tincture of iodine or the iodized phenol, seems at times to render service.

In some of these cases of membranous dysmenorrhœa the symptoms are aggravated by being complicated with other uterine disorders. The dysmenorrhœa will at least be ameliorated if not cured by proper treatment of these affections.

As palliatives, it sometimes becomes necessary to relieve the patient from her extreme suffering by means of subcutaneous injections of morphine. But this mode of treatment is quite objectionable for

reasons given elsewhere. Byford* recommends forcible dilatation of the cervix to facilitate the expulsion of the membrane and thereby shorten the attack.

There are some patients with this disorder in whom the monthly suffering is so severe, and the consequent neurasthenia and general debility so extreme it would seem advisable to bring about a premature cessation of the menses by removal of the uterine appendages.

EXTRA-UTERINE PELVIC ENLARGEMENTS AND EXUDATIONS.

Under this head will briefly be considered the pain which precedes or accompanies menstruation where there is ovarian congestion, enlargement or prolapse, inflammation of the adjacent tissues, such as the cellular tissue, lymphatics, or Fallopian tubes.

In all these there is more or less obstructed circulation and when the menstrual fluxion is super-imposed the tension becomes so great that pain results. With the majority the pain diminishes or ceases when the flow becomes established; but in plethoric patients with congested, enlarged or prolapsed ovaries, who have a scanty discharge, there is no excess of pain till two or three days after the beginning of the flow. In these cases the amount of blood lost is not in propor-

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* Vide, Byford, p. 152.

tion to the amount of its increase incidental to the menstrual nisus, and congestion is therefore rendered greater instead of being diminished as the flow continues. In patients suffering from extra-uterine pelvic disorders there is every variation in the degree of menstrual pain. Some experience so little additional discomfort at that time that they cannot be regarded as being at all dysmenorrhœic; while others pass from one to three days in pain which at times, amounts to anguish. These will usually be found to be neurotic patients in whom pain is largely subjective. There is no doubt however, that in some cases there is a proliferation of nerve tissue within the exudate, or an abnormal extension of the terminal nerve fibers about the increased number of vesicles in an enlarged ovary, which occurs to a greater extent in some than in others. This would account partially for the variation of pain in different cases of apparently equal gravity. In all of these, there is evidently peripheral irritation, which is the chief indication for the use of the bromides, and of these the bromide of sodium is preferable to the bromide of potassium, being more acceptable to the taste and to the stomach, besides it is less liable to cause cutaneous eruptions if taken a long time.

℞ Sodii brom., ʒ xss,
Aquæ, ℥ iv.

M. Sig.—Take a teaspoonful three or four times a day.

This should be done five or six days before the

expected time of the flow and continued for a day or two after its cessation.

Aside from the treatment already mentioned, which is directed towards improving the general system, an alterative course is also required, and to meet this indication, one of the following combinations will be serviceable:

℞ Hydrarg. chloridi corros., gr. ss–j.
Potassi chloridi, ʒ iij–v.
Glycerinæ, ℥ j.
Aquæ, ℥ iij.
M. Sig.—Teaspoonful three or four times a day.

The bichoride may also be advantageously combined with the iodide of potassium even in cases where there is no specific taint.

In the local treatment of dysmenorrhœa due to pelvic exudations, or displaced and enlarged ovaries and tubes, there is many times an opportunity for the exercise of that virtue designated as patience on the part of all concerned before any indication of an improvement is perceptible. It has seemed to the author as if there was no class of patients coming under the care of physicians with whom proper treatment can often be faithfully and systematically conducted for so long a period of time without results being apparent to the patient, as in those affected with the variety of disorders under immediate consideration.

The first indication of treatment is to quiet local

irritation, for which purpose can be used with good effect hot vaginal douches and sitz baths.

For the purpose of avoiding any repetition of what has already been stated concerning treatment, many matters pertaining to it which might appropriately be alluded to here will be omitted, but the author desires, however, to have his readers bear in mind that the same general principles of constitutional and local treatment heretofore alluded to should be carried on if pathological conditions exist analogous to those already described; as, for instance, if there is congestion of the uterus in consequence of the existence of the remains of a pelvic cellulitis, seeming to cause dysmenorrhœa, it is to be treated in a similar manner to that previously mentioned.

If with a dysmenorrhœic there is discovered a mass of inflammatory deposit and, as is of frequent occurrence in such cases, the uterus is retroverted and bound down by firm adhesions, or there is, or is not, in addition some enlarged lymphatic glands to be felt within the vagina, or a swollen sensitive Fallopian tube, or an enlarged and tender ovary to be felt, the physician should be extremely cautious about instituting any form of intra-uterine treatment. In such conditions, first is required the local treatment lately mentioned, viz., douches, baths, etc., to be followed by painting within the vagina the mucous surface overlying the enlarged parts with Churchill's tincture of iodine, or what is termed the saturated tincture of

iodine, the formula of which is given on page 8. While the douches and baths can be made use of once or twice daily, the iodine cannot be applied so frequently. It can often be done every alternate day or certainly twice or three times each week. To do this the most effectually, the patient should lie in a semi-prone position and a Sims's speculum be employed, or if no assistant is attainable the speculum recently devised by Darrow can be used.

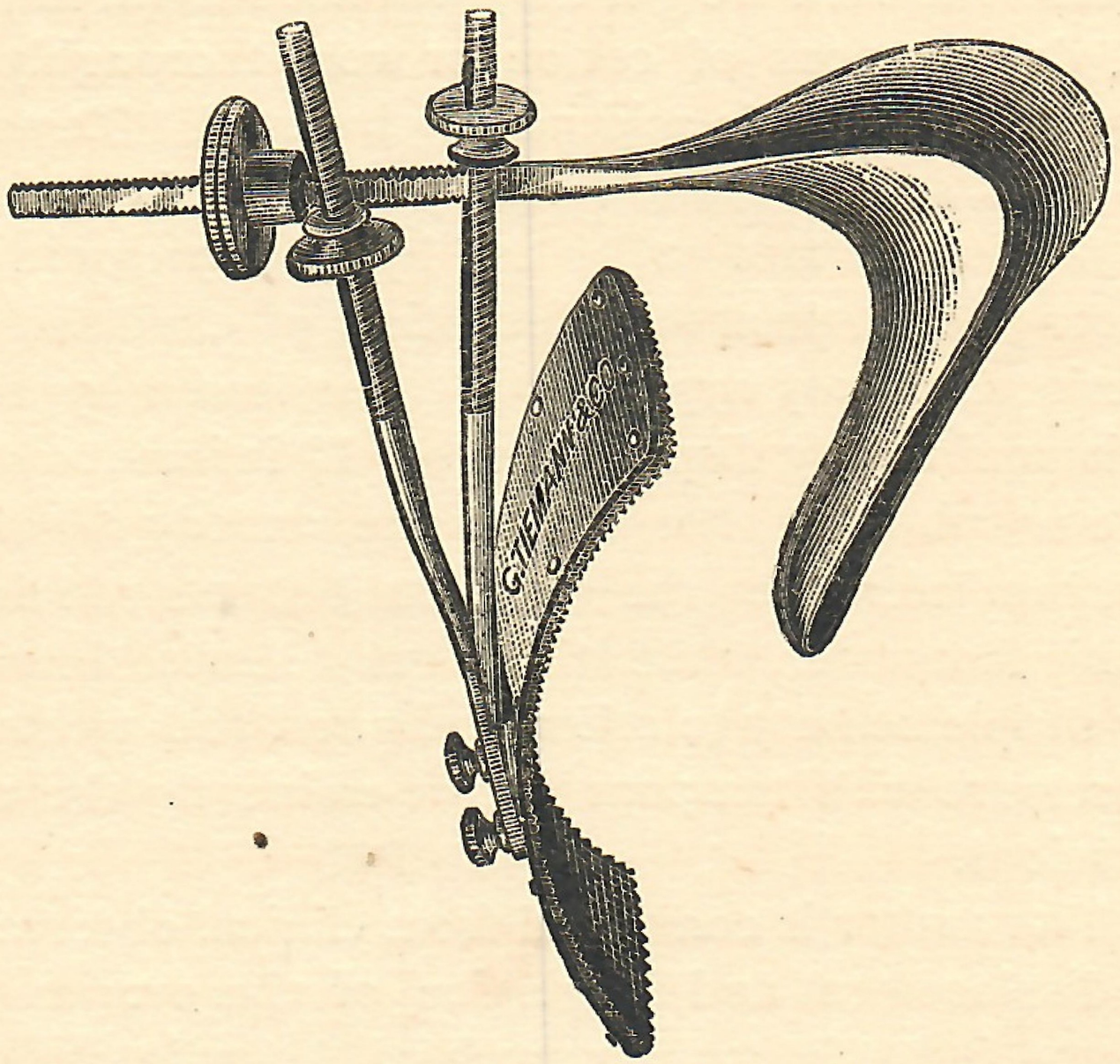

FIG. 12.—DARROW'S SELF-RETAINING SPECULUM.

Another remedy of great service in promoting the absorption of inflammatory deposits is iodoform.

This can be placed in the vagina by means of an insufflator, or it can be placed upon cotton or wool tampons, or even a better way of using it is in the form of suppositories within the rectum.

Following the topical applications above alluded to it is the author's usual practice to pack the vagina with cotton or wool tampons to which borated glycerine has been added. In some instances where the weight of the tampons thus saturated causes pain, or by reason of their weight they will not remain in position, dry tampons of cotton or wool thoroughly impregnated with boric acid may be inserted. Tampons thus used, serve a manifold purpose, viz., they answer as a medium of medication and by their pressure lessen congestion, promote absorption of exudates and adhesions, destroy hyperplastic tissue, lessen hyperæsthesia, and rectify displacements. If inflammation is acute or sub-acute, hot water is the remedy *par excellence*, but later when the case has become somewhat chronic, hot water, while still of great service, becomes only supplementary to other measures, and treatment by pressure with tampons is pre-eminently the most efficacious.

The author is convinced from clinical observation that displacement and congestion of the ovaries is a common factor in causing much of the pain and discomfort of dysmenorrhœa. In some instances being the sole cause. Associated with these conditions are frequently found enlarged and prolapsed Fallopian

tubes. In treating these conditions the physician should aim first, to diminish congestion with its attendant sensitiveness, and after these symptoms are remedied he should attempt the restoration of the ovary to its normal position. For this purpose, the patient should be placed in the knee-chest position and after the ovary is pushed as high as its tenderness will permit by means of one or two fingers within the vagina, it should be retained in position by means of tampons of cotton or wool while the patient occupies the same posture. In many instances where the ovary is prolapsed and is not held down by adhesions, the pressure of the atmosphere, if the perineum is retracted will often cause it to assume its normal location after which it should be retained there by the tampons. Sometimes the physician will feel at the left of the uterus what he believes to be a prolapsed ovary or Fallopian tube, but if it is not particularly tender while being pressed upon and feels similar to a varicocele in the male, he can rest assured that it is neither one nor the other, but instead, it is a varicose condition of the pampinniform plexus usually brought on by habitual constipation and for that reason to be found more frequently upon the left side.

Where there is great tenderness within the vagina of any of the organs, the author uses for tampons very small pieces of cotton or wool to which threads are attached for their removal, but for the purpose of inciting pressure and aiding in support of the organs he

has adopted a method of placing them differently from the ordinary method of simply filling the vagina with a mass of cotton or wool. He has them made in the form of quite firm cylinders from two to three inches long and one-half of an inch in diameter. A Sims' speculum having been introduced the first tampon is placed in the retro-uterine space, the next two on either side of the cervix and a fourth in front. The first and fourth lie transversely in the vagina and the second and third nearly so, the four forming a trapezoid with the longest side back and the shortest in front. Sometimes a soft pledget is placed in the posterior cul-de-sac before the first hard tampon is inserted.

If these four or five do not sufficiently fill the upper half of the vagina others may be lodged below them either observing the order of the first four or simply laying them crosswise with their length corresponding to the transverse diameter of the pelvis.

If the tampons are not packed so firmly as to cause pain, their presence will actually conduce to the patient's comfort, especially if there is any accompanying uterine displacement.

In many cases of dysmenorrhœa the ovaries and Fallopian tubes cannot alone be felt by vaginal examination, but are felt to be immovable and bound firmly down by reason of adhesions, as has been previously alluded to. This condition of things is here

mentioned for the purpose of directing attention to still another mode of treatment, a mode which is apparently attaining very great prominence in the domain of gynecology; namely, electricity. The success

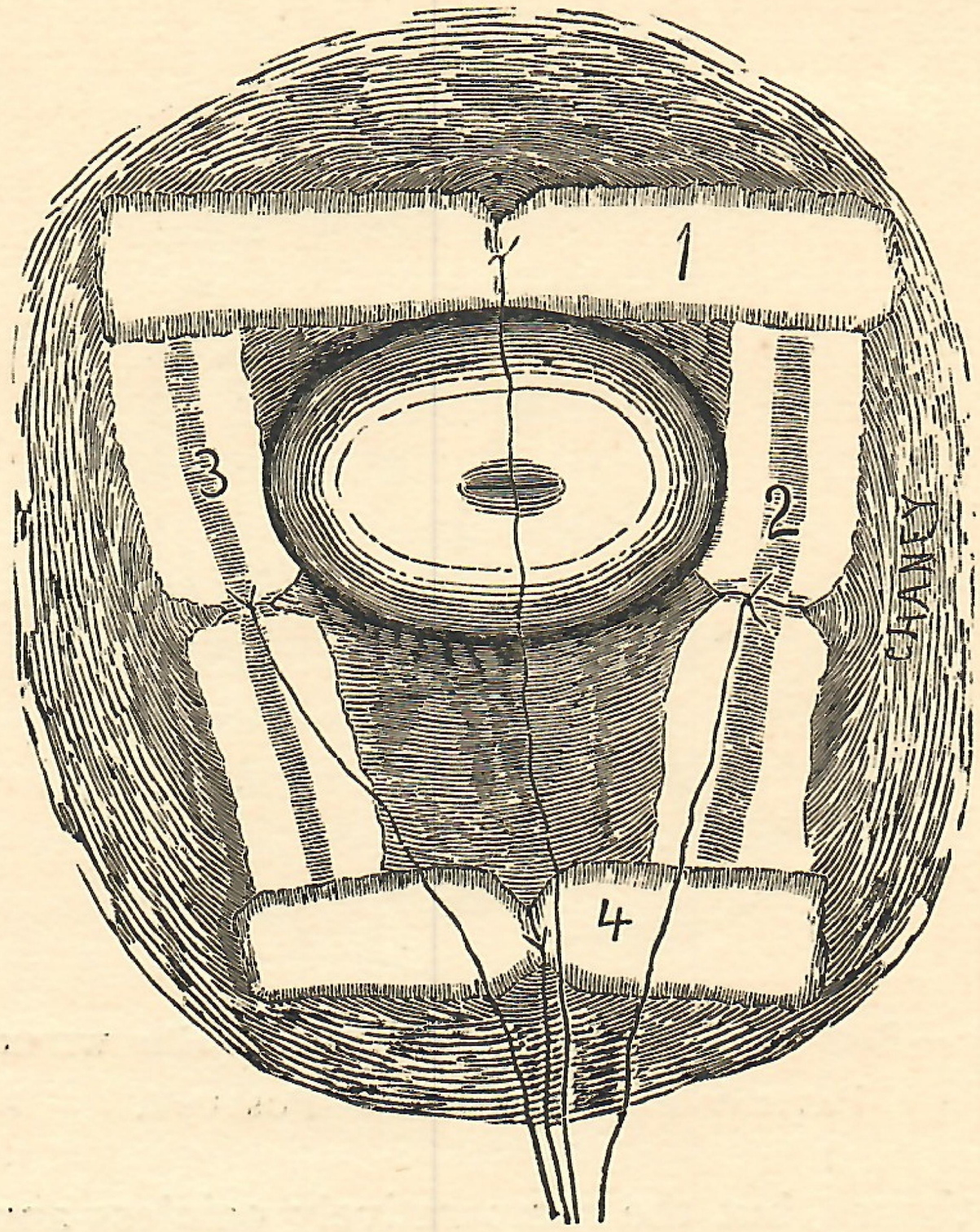

FIG. 13.—FRONT VIEW OF TAMPONS WHEN IN POSITION. PATIENT IN EITHER KNEE-ELBOW OR SIMS' POSTURE.

which has been attained by this agent in other departments of medicine and surgery lead us to hope that

like good results may be obtained in the class under consideration. In the department of rhinology and laryngology it is not the galvano-cautery alone that is used for removing adhesions and disposing of thick-

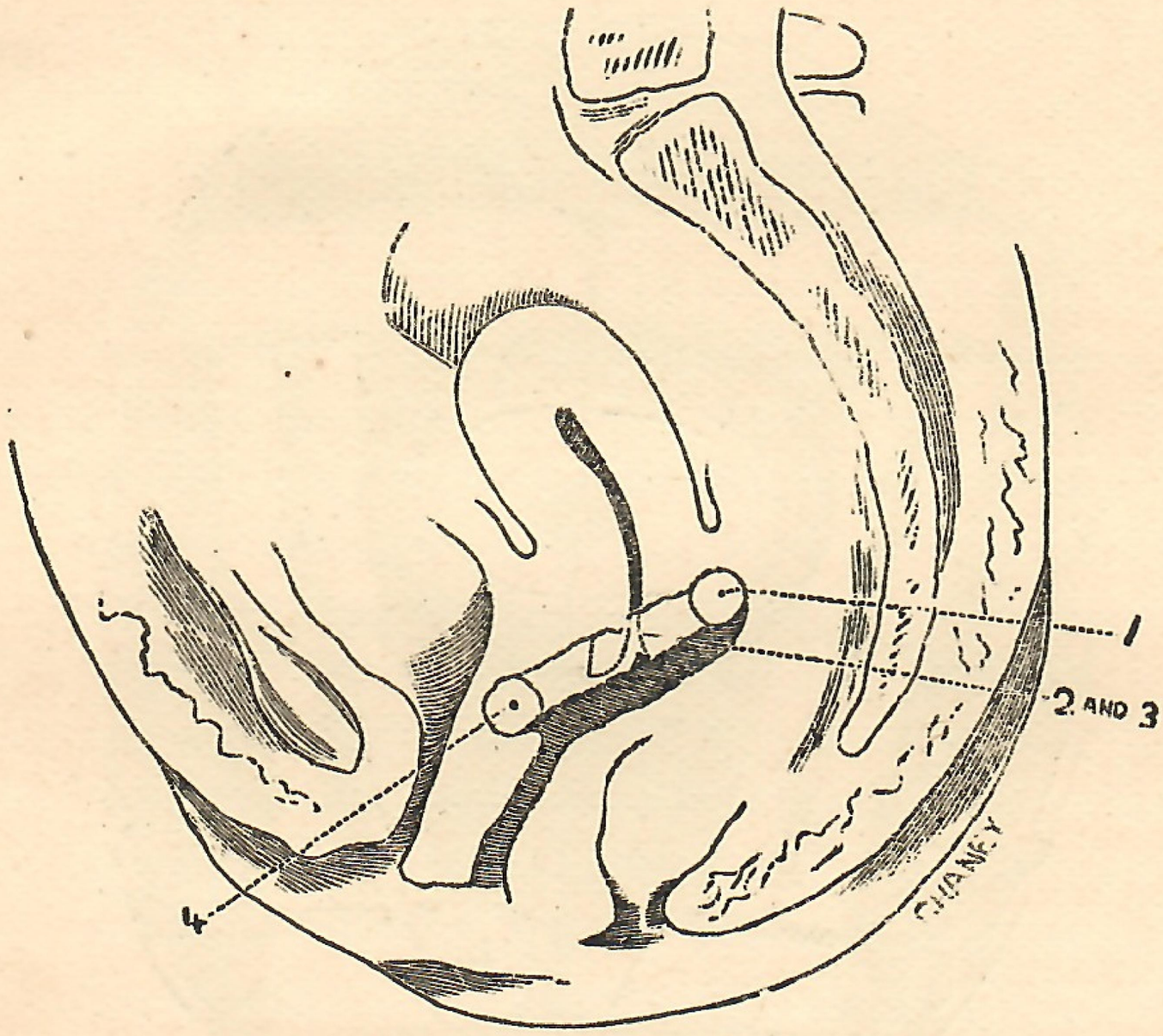

FIG. 14.—SECTIONAL VIEW OF TAMPONS *in situ* WHEN THE PATIENT IS IN THE ERECT POSTURE.

ened tissues, but the comparatively painless application of a continuous current of galvanism is employed to accomplish the same purpose. Galvanism has been employed with great success to cause the absorption of old exudations in other parts of the body, but it

"has been only indifferently appreciated by gynecologists," as stated by Rockwell.*

This writer also alludes to the fact that while this agent has been long known to be efficacious in promoting the absorption of the products of inflammation it is only within a comparatively recent period that it has been "tested in the thickening and infiltration resulting from inflammation of the pelvic cellular tissue." The author has used it in a limited number of cases with the best of results, but in order to speak authoratively he prefers to quote from the distinguished writer just referred to, who states that he "has seen this treatment, persistently and judiciously carried out, melt away large pelvic deposits." The negative pole of the galvanic battery, which may consist of a metal ball, is the one that should be applied internally. Apostoli in this class of cases, used negative electro-puncture, having the currents very strong, from which he claims excellent results.

In cases of dysmenorrhœa apparently dependent upon previous pelvic inflammation, where the ovaries are imprisoned by strong, dense adhesions, and it is believed that the structural changes are not sufficient to demand the removal of the ovaries, a few operators, the first of whom was probably Prof. Polk, of New York, feel justified by the good results they have ob-

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*Electricity in Gynecology." American System of Gynecology, Vol. I.

tained, in making abdominal incision, breaking up the adhesions and thereby restoring the ovary to its normal position.

This new and novel operation requires time and experience to determine its field of usefulness.

Occasionally the sufferings from the form of dysmenorrhœa designated as ovarian, is so great and its debilitating effect upon the nervous system so profound, that life is rendered unendurable. Under these circumstances oöphorectomy has shown both brilliant results and signal failures, the larger proportion of cases has been benefitted, a less number has been unchanged as far as pain is concerned. This operation finds a wider field of usefulness in those cases where suppuration has taken place, either in the ovaries or tubes and the frequently recurring local peritonitis or cellulitus which results therefrom, is continually endangering the patient's life. But these cases, although attended by much pain, are not always subject to a severe form of painful menstruation, consequently are without the boundaries of the present subject. The removal of the ovaries and tubes is always a *dernier ressort* and belongs more especially within the domain of abdominal surgery, but as the author has endeavored to treat the subject of disorders of menstruation rather more from the physician's than the surgeon's standpoint, he merely alludes to it with the conditions where it is indicated and justifiable.

DERANGEMENTS OF THE CLIMACTERIC.

That period in a woman's life which extends from the beginning of the irregularities which precede the cessation of the menstrual flow to the subsequent re-establishment of her health is designated as the climacteria (Latin), menolipsis (Greek), the climacteric, change of life, turn of life, critical time (English), ménopause, temps critque, age de retour (French), aufhoren der monatlichen reinigung (German). There are two rather indefinite divisions of this period for which there are no technical terms. The first is ushered in with the signs of the commencement of failure in ovarian and uterine functional activity, and ends with menstrual cessation. It is commonly known as the 'dodging time.' The second lasts from the final disappearance of the menstrual flow till the re-establishment of health.

There is no doubt but that in the great majority of women this apparent boundary line between the two divisions of the climacteric period, viz.: cessation of menstruation, coincides in point of time with the true one which is, failure of ovarian function or cessation of ovulation. But there are instances in which ovulation does not cease with the disappearance of the monthly flow. That this is a fact, is proven by the recorded cases of pregnancy occurring after this cessation.

Date of the Climacteric.—The large majority

women, cease to menstruate between the ages of forty and fifty. Tilt has averaged the time in 1,082 cases, of whih 501 were his own, 400 Guy's, and 181 those of Brierre de Boismont, and found it to be at forty-five years and nine months. Although this is the general average for temperate climates, there are deviations from it in different localities of the same latitude. The average length of menstrual life is thirty-two years. There exists a great difference of opinion among medical writers as to the effect of early or late menstruation on the length of this period. Observers have also disagreed as to the influence which premature or delayed menstruation has upon the period of cessation. In thirty-three cases of early menstruation occurring between the ages of eight and eleven, observed by Tilt, the average date of the cessation was two years earlier than in thirty-seven other cases where menstruation had begun late, between the ages of eighteen and twenty-two. This shows that delayed puberty can sometimes retard the appearance of the menopause. It has, however, been the experience of most observers, such as Brierre de Boismont, Dusourd, Guy, Frank, Hanover, Cazeau, Krieger and Kisch, that the duration of menstrual life is longer in those who menstruated early and *vice versa*, except where menstruation has appeared very early or very late; under both of these circumstances, cessation comes on early as a rule; though some out of the thirty-seven cases previously mentioned as cited

by Tilt, were those in whom it first appeared as late as twenty or twenty-two and was greatly prolonged. And on the other hand, Descuret cites an instance of a woman who menstruated at two years of age, married at twenty-nine, had a large family and did not cease to menstruate till the age of fifty-three. Queirel and Rouvier are of the opinion that the date of the menopause is not particularly influenced by the early or tardy appearance of menstruation.

The duration of menstrual life seems to correspond to the amount of ovarian energy possessed. If the latter is considerable it shows itself in the early development of the ovarian and uterine functions and their late disappearance.

Other circumstances which have an influence in determining the natural coming of the menopause are, climate, elevation of locality, soil, race, mode of life, social condition.

The most striking example of the influence of race is that of the Jews; they inhabit all parts of the earth, both hot and cold climates; but wherever their habitation, they show a marked tendency toward an early climacteric although the age of puberty with them is also early.

Numerous and frequent pregnancies sometimes hasten the arrival of the climacteric on account of the strain they produce on the whole system. The forces which are connected, either nearly or remotely, with procreation and which are designed to extend over a

certain period, may, possibly, by rapid expenditure be exhausted in a much shorter space of time. Kisch is of the opinion that the change of life takes place earlier in the laboring than the wealthy class.

On the other hand, the date of the menopause is sometimes normally delayed much beyond the average time. A healthy, protracted ovarian activitv goes hand in hand with exceptional constitutional vigor. It is a function of vegetative life and when its power does not begin to decline until after the usual time, it denotes an extraordinary vitality which results in longevity.

Instances of menstruation continuing up to the sixtieth, seventieth, or eightieth year are interesting because of their infrequency, but they cannot claim the importance that is due to those in which there is not only late menstruation but also late conception. These latter are of two kinds: first, those in whom menstruation has continued up to the time of conception; and, second, those in whom conception has taken place after cessation and it was supposed that the turn of life had passed. Those who conceive late—after the age of fifty—have usually borne several children earlier in life, although late marriage has been thought to have an influence; but cases have been reported where conception was not only comparatively late, but fecundity was extremely late. Tilt mentions an example of a woman who married at eighteen and was never pregnant till she was forty-eight, when she had

a child. Schmidt has reported a similar instance of a healthy woman who married at nineteen and did not become a mother until the age of fifty.

The second class of late conceptions have more interest for us than the first, since there is a diversity of opinion concerning them. Some hold that there is a return of ovarian activity as a result of some unusual influence; and it has even been likened to the occasional renewing of the sight or hearing in the old. Others think that there is a persistence of the ovarian function, although menstruation has ceased some time, never to return, or possibly to return after a long period. When there is a reappearance of menstruation, it is ordinarily a few months before conception takes place. This latter explanation is probably the true one. One case came under the author's observation of a woman fifty-five years of age, who, a year after menstruation had ceased, became pregnant and gave birth to a living child, but the child died from inanition the third day after its birth.

Duration of the Climacteric in the Normal Condition.—The time of the change is about equally divided into the pre-cessation and post-cessation periods, and its entire duration is normally from two to three years. Tilt, in his five hundred tabulated cases, recorded one hundred and thirty-seven in whom cessation was sudden and without prodromata; in two hundred and sixty-five, the "dodging time" lasted from one month to eighteen years, making an average of two years and three months.

The duration of the post-cessation period is as difficult to define as that of the pre-cessation, as very frequently the changes which take place are so gradual as to be imperceptible. From the observation of three hundred and eighty-three cases, Tilt concludes that the nervous symptoms and other phenomena of the menopause will have disappeared within three or four years. This would make the whole duration of the change from five to seven years in length, which seems considerably longer than others, including the author, have observed. Two to four years is the average length of time. The long period observed by Tilt and a few others might cause one to believe that some form of disease, either local or general, may have influenced its prolongation.

Normal Appearances and Conditions at the Climacteric.—Tilt* says: "Puberty and the change of life are caused by anatomical changes, the one by ovarian *evolution*, the other by ovarian *involution*."

At puberty the ovaries increase in size, whereas at the climacteric period they decrease. After cessation instead of being smooth and turgid they shrivel, and it is extremely difficult to trace the cavities of the Graafian vesicles. Later in life they are still more atrophied and their existence merely indicated by a small fibro-cellular substance. With this change in the ovaries are corresponding changes in the Fallopian

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* The Change of Life, by Edward John Tilt, Philadelphia, 1871.

tubes and the uterus, the vagina becomes narrower and shorter, while the vascular supply is diminished by the gradual shriveling up of the pampiniform plexus. In the beginning of the change the vagina is almost always uniformly hyperæmic, but as the vessels atrophy the hyperæmic condition disappears in localities so that there will frequently be observed dark red spots on a pale ground. The rugæ of the vagina gradually disappear and after a time the mucous membrane presents a uniformly pale or grayish color. The introitus vaginæ becomes narrowed and its mucous membrane changes and presents a similar appearance to the one already described. The adipose tissue about the mons veneris and labia gradually disappear. The mammary glands which are frequently congested and painful at the beginning of the climacteric, after its occurrence become atrophied—the glandular structure disappearing, although frequently in its place are fatty deposits.

Pathological Conditions Occurring at the Climacteric.—The variations in the date of the menopause heretofore mentioned were of purely a physiological origin and were frequently due to individual organic peculiarities. Deflections from the normal line, however, whether resulting in premature cessation or abnormal prolongation of menstruation, are more commonly in consequence of some pathological change, primarily in the nervous and circulatory systems with

secondary effects upon the ovaries and uterus; or primarily in the ovaries or uterus.

Premature menopause is more frequently brought about by changes in the ovaries than other pelvic organs.

The three forms of inflammation of the ovary, viz., peri-oöphoritis, interstitial and parenchymatous oophoritis may all, if severe, produce the same final result, viz., destruction of the Graafian vesicles. Primary peri-oöphoritis is caused by gonorrhœal infection, extension of inflammation from the tubes either acute or chronic, and suppression of the menses. Secondary peri-oöphoritis results from general or local peritonitis and may also accompany interstitial puerperal oöphoritis. In both the primary and secondary varieties, when severe exudations are from time to time poured out around the ovary, or dense pseudo-membranes form, which by subsequent contraction, compress and destroy the follicles (Olshausen).

Interstitial oöphoritis is caused principally by diseases of the puerperal state. There is first an increase of the cellular tissue surrounding the Graafian vesicles, which, by its density, prevents them from rupturing; afterwards it contracts and destroys them by cutting off their blood supply.

Parenchymatous oöphoritis may be caused by local peritonitis. The functional activity of the ovaries may also be destroyed by benign or malignant disease.

Atrophy of the uterus may cause early appearance of the menopause. This abnormally premature senile condition of the uterus may follow difficult labors, puerperal metritis, puerperal peri-metritis and para-metritis, puerperal super-involution, and abortion with profuse hemorrhage.

Those general diseases or conditions which may have a secondary effect upon the uterus and ovaries with destruction of their functions, are those which produce mental or physical shock or greatly exhaust the vital forces. Of the former there are, sudden fright or grief, and great anxiety, a severe cold or wetting at the menstrual period; of the latter there are, typhus, cholera, septicæmia, recurrent fever, the exanthemata, poisoning, as by arsenic and phosphorus (Myschkin), mercury (Hinsberg), alcohol and opium (Puech), continued diarrhœa, venesection or drastic purgatives at the menstrual period.

A sudden amenorrhœa which may follow any of the acute infectious diseases (cholera, yellow fever) or the exanthemata, may prove to be a premature menopause. The investigations of Slavjansky in cases of cholera, typhus and similar infectious diseases and the studies of Lebedinsky in scarlet fever, show that in both, when the genital organs are affected, there has been an occurrence of the third form of ovarian inflammation previously mentioned, viz: parenchymatous oöphoritis. In this form the inflammation begins in the Graafian vesicles and frequently does not extend

much beyond them; consequently the ovary may not have increased in size nor changed in macroscopic appearance.

Paralysis of the lower half of the body has also been mentioned as causing complete cessation in young women.

One of the most frequent conditions a physician is called upon to treat about the time of the menopause is uterine hemorrhage. Allusion has already been made to this in connection with fungosities and malignant disease. As heretofore stated, uterine fungosities are very common at this age and polypi are especially liable to develop. While a flow of blood is liable to occur in consequence of any of the pathological conditions just mentioned, it is nevertheless true that not infrequently, hemorrhage occurs at this time from causes not easy to explain. Scanzoni is of the opinion that in many instances, the loss of blood is due to the senile rigidity and friability of the uterine vessels, which are not in a condition to offer sufficient resistence to the blood-pressure that is brought to bear on their walls. Kisch attributes menorrhagia at the climacteric to the softening and relaxation of the uterine tissues. Doubtless the cause in many instances is in consequence of some circulatory disturbance in the pelvic organs or obstruction, whereby the outflow of blood is hindered and a chronic stasis in the uterine walls is produced. Börner attributes the menorrhagia in these heretofore inexplicable cases

to vaso-motor disturbances, such as those in other regions which frequently characterize the menopause. Allusion was made under the head of menorrhagia and metrorrhagia to the frequncy of uterine hemorrhage and the necessity, if rational treatment is instituted, of ascertaining if possible the cause of the flow.

As it is at the climacterium malignant diseases of the uterus are liable to develop, and the subject is of such great importance, the author may be excused if he again urges upon his readers the necessity of thoroughly investigating the causes of hemorrhage occurring at this epoch of a woman's life. Many times, if examination had been made earlier, cancer of the cervix would not have reached a hopeless stage before the true nature of the disease was discovered. Clinical observation leads to the belief that cancer of the cervix uteri occurs more frequently just preceding or at the time of the menopause, while cancer of the body of the uterus is most common after the climacteric is established.

While the climacteric period exerts such an influence as has been alluded to in developing malignant diseases, almost an opposite influence is exerted upon fibrous tumors of the uterus. While it is true that during the menopause these tumors seem to increase in size, doubtless on account of increased vascularity, it is no less true that after the change is established, they undergo marked diminution. The climacteric seems to exert another peculiar influence in the trans-

formation of fibromata into sarcomata. Sussdorff * refers to it as follows:

"Although most of the functional and organic affections of the female genital organs decrease in severity after the menopause, in a considerable number of cases exactly the opposite occurs, so that benignant degeneration may even become malignant."

Hemorrhages of a vicarious character sometimes occur in other parts of the body at the time of the climacteric. The most common are from the stomach, nose, lungs, or from hemorrhoids. Every case of this kind demands careful and thorough investigation. The nervous mechanism of these hemorrhages has been explained as follows:†

"The cessation of menstruation causes an increase in vascular tension, and consequent irritation of the vaso-motor centres. Various local hæmostases result, which cause the symptoms of suffusion of the face, tinnitus, headache, giddiness, etc. In a limited number of cases these local congestions are relieved by the escape of blood."

Leucorrhœa is of common oocurrence in connection with the change of life, and while sometimes due to some local disorder, it is more commonly in the

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* N. Y. Med. Record, Dec. 21, 1878.

† Pepper's System of Medicine, Vol. IV.

Functional Disorders of the Menopause, by W. W Jaggard.

absence of local or general disease, simply an effort of nature to relieve congestion of the pelvic organs.

Displacements of the uterus are to be treated when occurring at the change of life on the same general principles as at other periods. As regards the use of pessaries the senile changes in the genitalia super-added to changes incident to the climacteric often entirely preclude the use of the so-called lever pessaries or any modifications of the Hodge, such as Albert Smith's, Emmet's and others. The reason one is not able to use lever or exclusively vaginal pessaries, in such instances as last referred to, is that they cannot be retained, owing to the changes mentioned; and as it is often important that a pessary should be employed to hold up the uterus, on account of the displacement of the bladder and other pelvic organs, pessaries which are rarely admissible with menstruating women, particularly such as have a uterine cup or ring with a stem fixed in an abdominal belt, are often the most serviceable support that can be used. Occasionally a surgical operation to restore the perineum and posterior vaginal wall is advisable.

Vaginitis is a disorder of not infrequent occurrence at the menopause. This affection is often accompanied by a sense of internal heat, bearing down pain, with considerable disturbance of the bladder, while the passage of the urine may be attended by a scalding sensation. The discharge from the vagina is often purulent, possessing an offensive odor and fre-

quently chafes the external parts by reason of its acridity. Tilt is of the opinion that women who have suffered much from uterine disease prior to the change of life, are peculiarly liable to attacks of vaginitis after it has occurred.

Disorders of the digestive organs are among the frequent accompaniaments of the menopause. Sir J. Y. Simpson, Tilt, Robert Barnes, and many others have expressed the opinion that functional derangements of the liver are peculiarly liable to occur with the change of life. Women at this time sometimes complain of nausea and vomiting, a disagreeable taste in the mouth, frontal headache, high colored urine and other symptoms which are common in connection with functional disorders of the liver. Dyspepsia, diarrhœa, and flatulence are of common occurrence. Constipation is a frequent accompaniament of the climacteric period, although not necessarily in consequence of it. If already existing, it is liable to be aggravated by the change of life. The obstinate constipation of this period is doubtless due to an atonic condition of the intestinal canal. The same may also be said of diarrhœa which is an occasional disorder of this period. Doubtless many of these functional disturbances of the intestinal canal are purely neurotic.

The urinary organs are often disordered in consequence of the cessation of menstruation. The emunctory office of the menstrual flow, without ques-

tion imposes extra labor upon the kidneys after the establishment of the climacteric. The urine at this time is frequently thick and contains much sediment, more commonly urates.

The most numerous and prominent disorders occurring at the change of life are of the nervous system and are apparent in the neuroses occurring in the various parts of the body. Tilt attributes these numerous functional disorders to disturbances of the sympathetic system alone, but when the physician is called to treat them it is found impracticable to separate disorders of the ganglionic system from those of the general nervous system. Hysteria with its multiform disturbances is one of the common disorders incident to the menopause. There is no form peculiar to this period, as its symptoms are the same at whatever age it occurs. At the change of life, the same as at other times, any one of the nervous affections may be quite perfectly counterfeited. Tilt expresses the opinion that hysterical symptoms at the menopause are much less common among the poor than among women whose nervous systems are wrought up to an artificial state by luxurious living, by overworking the mental faculties, and still more by the over-development of the emotions. Convulsions followed by coma or delirium are occasionally met with. Tilt refers to a light variety of coma which he designates as pseudo-narcotism. Occasionally functional paralysis takes place at this time.

Spurious pregnancy is one of the hysterical manifestations occasionally met with at the climacterium. The abdomen enlarges, the breasts may be swollen and tender, while nausea and many of the sympathetic derangements of pregnancy are closely imitated. But the careful diagnostician will rarely be deceived regarding the existence of pregnancy as an examination will reveal the absence of the characteristic signs. Occasionally an anæsthetic will be required to perfect the diagnosis. Of the same character are the phantom tumors which occur among hysterical women, sometimes observed at the close of menstruation.

Melancholia and hypochondriasis are not uncommon and it has been believed by many that this time is peculiarly liable to develop insanity. The climacterium has been for a long time supposed to be one of the most prolific of any other period of a woman's life of uncontrollable impulses. It is true that the mind may be perverted at this time, but it is not proven that moral perversion or uncontrollable impulses occur more often with the change of life than in the puerperal state, but possibly oftener than at other times. As a rule the various mental derangements here alluded to wholly disappear with the re-establishment of health.

There is one condition met with in connection with the cessation of menstruation, regarding the pathology of which there is a marked difference of opinion, viz., cerebral hyperæmia. The frequent head-

aches, dizziness, ringing in the ears, drowsiness, suffusion of the face, and full pulse, are the symptoms attributed by some authors to cerebral hyperæmia in consequence of plethora. Cohnheim states that, "except as a transitory state, plethora does not occur under any circumstances." The pathologists of whom he is an exponent, attribute the appearance which has been called plethora to vaso-motor disturbances; the amount of peripheral blood may thus be increased without any increase of the total mass. The increased nervous disturbances of this period often manifest themselves in sudden profuse sweating. This symptom may be alternated with sudden flushes or "flashes of heat." Among the so-called neuralgias of most frequent occurrence are mastodynia, inter-costal neuralgia, lumbago, and myalgia in various parts of the body; also neuralgic pains along the course of the spinal column and in the sacrum.

Women undergoing the change of life frequently complain of heart troubles, often there will be a sudden increase in the frequency of the pulse, while palpitation is even more common.

Clément* calls attention to an affection of the heart occurring at the climacterium, which he designates *cardiopathie de la ménopause*. This affection is characterized by palpitations, which are progressive in severity, sometimes coming on with vertigo, præcordial

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* Lyon Médicale, August, 1884.

pain, and dyspnœa. Later there is a tendency to attacks of fainting, while the pulse is small and irregular. This author directs especial attention to the condition of anæmia which accompanies this disorder of the heart.

A disorder of frequent occurrence with the change of life is obstinate pruritis of the genital organs. The sufferings attendant upon this affection are often extreme, more especially as the ordinary local treatment of pruritis occurring at other times often utterly fails to have a beneficial effects upon pruritis of the menopause.

There are some affections of the skin which seem to occur oftener at the beginning of menstruation, and also at the close, such as acne rosacea, erythema, prurigo, eczema and urticaria.

Treatment.—If one has occasion to consult authorities to aid in the treatment of any of the disorders of the menopause, he cannot but observe the paucity of literature on the subject. Consequently the author cannot present such a variety of opinions, based upon the observations of others as otherwise could be done.

There are, in general, two conditions which are nearly always present in marked disorders of the climacteric period, viz., anæmia and lowered nerve tone; therefore, in the treatment of these affections, this fact should be borne in mind. Such systemic remedies as iron, the bitter tonics, and mineral acids,

and preparations of strychnia and nux vomica and phosphorous are usually indicated, while remedies having a depressing effect upon the nervous system and spanæmics are as a rule to be avoided. It is only rarely that we meet with cases in which there is so much plethora as to demand depletory measures like wet cups, leeching, cathartics, or in which there is sufficient nerve vigor to be benefitted by or even to endure a long continued use of bromides of the alkaline bases for the alleviation of nervous irritability.

The inclination to sluggishness of the liver, skin and kidneys should be overcome by remedies which will stimulate them to a normal activity.

The circulation should be increased, not only by increasing the amount and improving the quality of the blood with tonics, but also by stimulating the circulatory powers by the administration of digitalis or convallaria, and by such mechanical means as massage and abundant, gentle out-door exercise.

Now as regards the local treatment of affections of the genital organs, it is well to bear in mind that not infrequently, the change occurs while the uterine tissues—particularly the endometrium—is in an unhealthy condition, so that it is not rare to find chronic congestion characterized by marked hyperæsthesia of some portion of the living mucous membrane. Topical remedies, such as iodized phenol or pure carbolic acid are applicable the same as in a like condition at other times of life. Depletory treatment, ex-

cept in active congestion, should usually be avoided, more commonly stimulating measures are indicated. The "dry treatment" which is not followed by the characteristic watery discharge attended upon the use of tampons saturated with glycerin, is particularly applicable for this class. Dr. Wylie calls attention to the fact:* that women who have suffered from dysmenorrhœa during menstrual life, may have very distressing symptoms at or after the climacteric from the same cause, viz., hyperæsthesia about the internal os. Forcible dilatation and the application of pure carbolic acid to the endometrium produces marked diminution or even entire subsidence of the many distressing phenomena.

Vaginitis occurring at or after the menopause is seldom acute, not rapid in its inception and exceedingly persistent. The systematic remedies previously mentioned, which have an influence on the nervous system, are, perhaps, more important than local applications, although the latter are also demanded. In spite of the great hyperæsthesia in these cases, a small Sims' speculum (for rectal examination) can be used to expose the vaginal wall. A small quantity of oxide of zinc or sub-nitrate of bismuth may be dusted on the surface or placed upon one or more long, small, flat pieces of cotton or wool which have been lubricated with vaseline; these serve not only as a means

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*Loc. Cit.

of medication but also to separate the irritated vaginal walls. Iodoform applied in the same way often gives great relief. The greatest objection to the use of iodoform is its offensive odor, but this may be largely overcome by mixing it with balsam of Peru which also has a beneficial influence upon the diseased mucous membrane when it is not in a state of active congestion.

Of the vaginal injections, the ones which are the most serviceable, are: fluid extract of hammamelis, one part to six or more parts of water – it should be sufficiently diluted to prevent smarting—or, a teaspoonful of powder of equal parts of borax and hyposulphite of soda, to a pint or more of water.

If the vaginitis seems to be continued, which it frequently is, by an irritating discharge from the uterine cavity, special attention must be devoted to changing its abnormal character by applications made directly to the endometrium.

Since disorders of the intestinal tract are more frequently due to defective innervation than to any diseased state, remedies especially adapted to this condition are indicated. Flatulence is caused by intestinal atony or lack of bile. Ox-gall combined with nux vomica or sometimes with ginger will therefore be found useful.

℞ Fellis bovini, gr. xxiv.
Ext. nucis vom., gr. vi.
M. Et. Divide in capsules No. xii.
Sig.—One three times a day.

Bilious attacks during the post cessation period occur with some. After one or two the patient usually knows when one is coming on and can prevent or lessen it by some preparation like the following:

℞ Mas. hydrarg., gr. iv.
Pulv. rhei
Ext. gentian, ää gr. xxiv.
M. Et. Divide in pilulas No. xvi.
Sig.—Take one three or four times a day for several days.

In place of the above four or five grains of muriate of ammonium in a wineglass of cold water three times a day between meals will be found serviceable for the same disorders.

The hygienic treatment of cases, in which there are aggravated nervous symptoms, is of paramount importance.

When there is cerebral hyperæmia the diet should not be stimulating nor difficult of digestion.

The circulation should not be interfered with by tight clothing.

In cerebral hyperæmia general plethora is by no means an ever potent factor, and unless the former is so intense as to demand active interference the more powerful depletory measures, like wet cups, venesection or drastic cathartics, are not called for.

In marked cerebral hyperæmia the drug which neurologists seem to depend upon as a sheet anchor, is ergot, administered usually in the form of ergotine. In a like condition occurring at the menopause the

same drug is applicable. The occasional use of the bromides or chloral may be required; but the tinnitus and cerebral pressure will often disappear from the action of the ergot alone, and quiet sleep at night will frequently ensue. Against sleeplessness, foot or sitz baths will sometimes prove more efficient than the ordinary hypnotics. The bath should be at a temperature of 104° to 108° F., and should last twenty to thirty minutes.

Symptoms due to disturbed innervation, the result of anæmia, may closely simulate those of true cerebral hyperæmia and, at this time of life, probably occur oftener.

In cases of cerebral anæmia the bromides and chloral are contra-indicated, and such remedies as caffeine and nitrite of amyl or alcohol in small quantities can be employed with advantage.

As a rule the general nervous symptoms of this period are better combated by remedies which stimulate rather than by those which depress; of such are camphor, caffeine, hyoscyamus, etc.

The patient suffering from palpitations and other heart symptoms of purely nervous origin may obtain transitory relief from valerianate of ammonia. When they are neither very frequent nor severe a temporary effect is all that is required; but if something more lasting and efficient is demanded the following will be found useful:

℞ Caffein. citrat., gr. xxiv.
Acidi hydrobrom. dil.,
Syr. Limonis,
Aquæ, ää ℥ j.

M. Sig.—One teaspoonful. To be repeated in three to six hours if required.

The different forms of neuralgia are common with neurasthenic patients and many women during the climacteric period are of this class. Those who have suffered from dysmenorrhœa, particularly the neuralgic form earlier in life, are liable to have neuralgia in various parts of the body; and the general systemic and hygienic treatment given in connection with the subject of dysmenorrhœa with a neuralgic element is also applicable here. In the ill-nourished —and many neuralgic sufferers at the menopause come under this category—a systematic mode of feeding is requisite and of more value than drugs. To carry out this course, together with the hygienic treatment, successfully, it sometimes becomes necessary to remove patients from their own homes for a time to some well conducted sanitarium where such a course can be properly and systematically pursued. In connection with other treatment, galvanism may render great service, by causing better nutrition and improving the condition of the nerves and nerve-centres.

Among the many topical application for the relief of neuralgic pain the author has found the following as generally serviceable as any:

℞ Chloroformi,
Ætheris sulph.,
Spts. camphoræ, ää ʒ ij.

M et f. lin.
Sig.—For pain, use as a liniment.

In myalgia occurring in any part of the body, as in neuralgia, it is often requisite in the outset to administer morphine hypodermically to relieve the intense pain, but this is only a temporary expedient, and is objectionable for reasons heretofore stated, particularly if the disease is of long continuance or the patient is subject to recurrent attacks. In chronic cases massage together with the slow interrupted galvanic current will often prove of great service in lessening pain and shortening its duration.

Local applications in any stage of the disease may be beneficial, particularly anodyne lotions or liniments containing aconite, belladonna, chloroform or chloral. The combination of chloroform, ether and camphor mentioned above is applicable in these cases, and when applied on the forehead will often relieve the migraine with which the class of patients under consideration are frequently afflicted. As a local application in myalgia and kindred affections an anodyne liniment like the following will usually relieve pain, even if quite severe.

℞ Chloralis hydratis, ʒ ij- ʒ iij,
Linimenti saponis, ℥ iv.

M. Sig.—Shake and apply thoroughly.

With patients that have the appearance of being plethoric or as being well nourished, saline laxatives and vapor or Turkish baths are highly extolled by some authors, but as the majority are anæmic and the reverse of well nourished, quinia, iron, arsenic and cod liver oil are more frequently indicated. In case myalgia continues, chloride of ammonium in full sized doses will prove to be a remedy of great value, while in like conditions some advise the administration of iodide of potassium in small doses.

If the general condition of patients is below the normal standard the local pain and lameness is liable to continue until there is an improvement in the general health. It is therefore essential and of paramount importance in such instances first to adopt and next to continue modes of treatment that have in view the re-establishment of health.

INDEX.

PAGE.

A.

Amenorrhœa..... 1
Anodynes..... 61, 62, 63
Anodyne Liniment..... 115
Apostoli, Negative Electro-puncture..... 89

B.

Barker, Fordyce..... 25, 26, 63
Barnes, Robert..... 104
Brierre de Boismont..... 92
Börner..... 100
Boro-glyceride and Alum..... 10
Byford, W. H..... 79

C.

Clément—*cardiopathie de la ménopause*..... 107
Climacteric..... 91
Pathological Conditions at..97, 104, 105, 111, 112
Cohnheim..... 107
Constipation, a Cause of Ovarian Congestion..... 43
a Cause of Menorrhagia..... 19
Curette, Use of..... 22, 36, 37

D.

Darrow's Speculum..... 83
Descuret..... 93
Dilatation of the Cervix..... 69
Indication for..... 67, 109
Contra-indication of..... 73
to Arrest Uterine Hemorrhage..... 36

PAGE.

Douches, Hot 9, 41
Dusourd 92
Dysmenorrhœa 43
Treatment of 56

E.

Ellinger's Dilator 34
Emmet, T. A 34

F.

Foster, F. P 41
Frank 92

G.

Galvanism for Adhesions and Exudations 87
in Non-development 4
in Dysmenorrhœa 60
Garrigues, H. J 26
Gehrung 76
Goodell 71
Guy 92

H.

Hanover 92
Hank's Dilator 70
Hinsberg 99
Hodge 103

I.

Iodine, Churchill's Tincture of 7
Saturated tincture of 8
Iodoform 83
Disguising Odor of 111

J.

Jaggard, W. W 102

PAGE.

Jenk's Uterine Probe and Sound..... 23

K.

Kisch 94, 100
Krieger 92

L.

Lebedinsky..... 99
Lyman, G. H..... 36

M.

Menopause, Premature 98
Menorrhagia and Metrorrhagia..... 18
Treatment of..... 23
Molesworth's Dilator..... 71
Myschkin..... 99

N.

Neuralgia at the Menopause..... 114

O.

Oldham 50
Olshausen 98

P.

Palmer, C. D.....25, 65
Peaslee's Dilators..... 69
Phenol, Iodized..... 8

Q.

Queirel..... 93

R.

Rockwell..... 89
Rouvier 93

PAGE.

S.

Schmidt 95
Simon's Scoop 35
Sim's Styptic Cotton 31
Simpson, Sir J. Y 104
Smith, Albert 76
Sussdorf 102

T.

Tamponing for Uterine Hemorrhage 30
for Displacement 85
Thomas, T. G 22, 31
Tilt 93, 95, 96

V.

Vaginitis at the Menopause 103, 101
Virchow 51
Vicarious Menstruation 13

W.

Williams, J 51
Wylie, G 19, 110

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